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ARCHITECTVRE

ENGINEERING

DECORATION

CONSTRVCTION

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(Gelatine print issued only with Imperial Edition.)
Building on Kingston and Bedford Streets, Boston, Mass.
Competitive Design for the Cathedral of St. John the Divine, New York, N. Y.
House at Detroit, Mich
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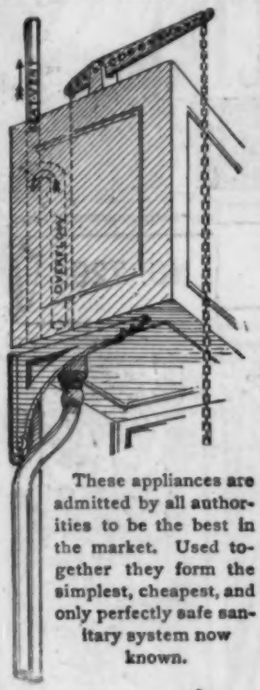

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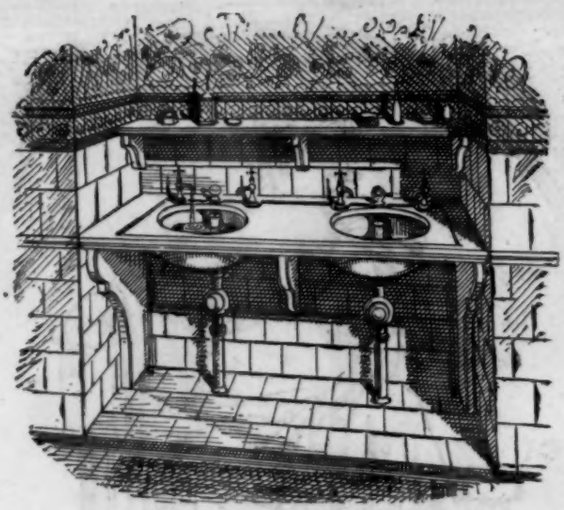

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WE hope that the new Institute will not forget that it is now in a condition to do what the Royal Institute of British Architects has been doing for the past two or three years, to the great advantage of the profession in England, that is, to begin a process of selection among the young aspirants for admission into the profession, by requiring them, after a certain date, to pass an examination. At present, no person, not an established architect of good reputation, is received into the Royal Institute of British Architects, except from the ranks of the Probationers, who are young men, who have voluntarily submitted to examination by the Institute examiners, and have passed the examination satisfactorily. On passing the examination, a certificate is given to the successful candidate, who is thenceforth eligible to the Institute, and, if he conducts himself properly, is elected to it in due time. This regulation was adopted by the Institute only after great opposition, and with the prediction that no one would apply for the examination, and that the Institute itself would go to rapid decay. Instead of this, the successful passing of the examination has already become the ambition of every student of architecture in England worthy of the name; the Architectural Association maintains regular classes, taught with zeal and skill, for preparing its members for it, and the Institute itself, so far from losing in credit among the young men, has become, as the dispenser of certificates, more important and honored than ever before, while, instead of losing in membership, the number of those who wish to get into the Institute increases every year, one hundred and seven candidates having already presented themselves for examination this year. More than this, as is well pointed out by the editor of the *British Architect*, the effect of the new regulation is to accomplish in the quietest and best way what many architects wish to see done by Act of Parliament, in a manner offensive to most of the profession, that is, the elimination from the profession of the ignorant bunglers who now encumber and disgrace it. Both the public and the profession agree that these people ought to be shut out, but they also agree that there are almost insuperable difficulties in the way of immediately selecting and expelling them. By the new system they will be, during the next generation, insensibly separated and rendered harmless, without violence or injustice to any one; because the men who have been examined and certificated will associate themselves together, just as the "architectes diplomés" have already done in France; and as it will be perfectly easy, and very advantageous, for any competent person to obtain the certificate, the public will soon learn to demand the visible sign of skill from those to whom important building affairs are to be entrusted.

ANOTHER contractor has been spending a good deal of money and time in learning a piece of law which he might have got just as well by reading any one of several numbers of this journal. In the Court of Common Pleas in Philadelphia, a few days ago, the American Artificial Stone Company brought suit against one of the city officials, for nineteen thousand dollars damages, for failing to award to the Company the contract for lining the East Park Reservoir. It seems that the official in question, Director Wagner, advertised for bids for doing the work, and the Artificial Stone Company was the lowest bidder. Mr. Wagner considered the proposals, but, instead of awarding the work to any of the bidders, advertised for new proposals, in accordance with modified specifications. The Artificial Stone Company did not submit a second bid, but contented itself with bringing a suit against Mr. Wagner personally for not accepting its first one.

IT is hardly necessary to say that the suit was thrown out, for two reasons, either of which would have been sufficient to defeat the stone company without the other. In regard to the first point, the judge said that the claim appeared to be "based upon the theory that a bidder who is the lowest in the amount of his bid, and against whom the city or its proper officer makes no specific objection as to his responsibility, is legally entitled to have given to him a contract for which he has bid." This theory, which, we are sure, is a very familiar one to our readers, "cannot," the judge said, "be maintained." We have often described similar cases, and have read accounts of many more, and, as the opinion of the judges has always been to the same effect, it is surprising to us that the stone company should have been able to find a lawyer who would encourage it to bring such a claim into court. In spite of the odiousness of comparisons, we cannot help wondering what lawyers would have to say about an architect who advised or encouraged a client to adopt a method of construction which was theoretically opposed to the principles of statics, as taught by his technical books, and which, moreover, had been tried a score of times before, and had invariably failed. As to the propriety of suing Mr. Wagner personally for acts done in his official capacity, the court said that it was "altogether clear" that, in the absence of evidence showing malice or bad faith, no personal liability would arise on the part of an officer exercising duties of a judicial or discretionary character for acts done in the line of his duty, notwithstanding they might have been "erroneous in fact and injurious in consequences."

FIRE AND WATER gives an account of the recent conflagration in Boston, which may be taken as coming from an expert, and mentions a few interesting points. It is curious that the first alarm was given from the same box from which was sent out the alarm for the great fire in 1872, which also began in Kingston Street, then occupied by small dwelling-houses. In just one minute from the striking of the alarm an engine was on the spot, but the flames had burst from every window in the building, the Brown-Durrell store, before a line of hose could be laid. In a few moments fourteen more engines had arrived, but the heat of the fire was so intense that the solid streams of water from the hose turned into steam before they entered the windows, and the engines might just as well have blown air at the flames. In twenty minutes the walls fell, and the fire crossed the two adjacent streets. All the engines in the city, thirty-three in number, were hurried to the spot, and help was summoned by telegraph from all the neighboring towns, and even from Springfield, a hundred miles away, and, notwithstanding the heavy rain which prevailed during most of the time, nearly seventy engines were assembled, and pouring rivers of water on the fire, before it was subdued.

THE German Krieger-Verein, or Grand Army Association, proposes to erect a monument to the late Emperor William on the Kyffhauser Mountain, a spot connected by very ancient traditions with the nationality of the Germans, many of whom believe to this day that their great Emperor Frederick Barbarossa lives still in the subterranean chambers of the castle on the mountain, where he sits, leaning his head on his hand, beside a stone table, through which his beard has grown in the seven centuries that he has been waiting for the summons which is to call him from his concealment to lead for the third time a vic-

torious army against the enemies of Christ. Whether the modern German soldiers chose the place with the idea that their good and brave old Emperor inherited and carried out the work of Barbarossa we cannot say, but the legend ought to furnish some inspiration for the monument. The design is to be selected in competition, and all subjects of the German Empire, whether residing in Germany or not, are invited to take part in the competition. Whether the design shall be partly architectural, or consist purely of sculpture, is left to the judgment of the designer, but a figure of the late emperor must be introduced, in military costume, at double life-size. Designs must be delivered in Berlin before June 1 next, and must consist wholly or partly of models at one-tenth the full size, and each competitor must agree, if required, to devote himself on the spot to the execution of the work until its completion. The cost is limited to four hundred thousand marks, or about one hundred thousand dollars. The jury of award consists of noted architects, sculptors and painters, and prizes of six thousand, four thousand and three thousand marks will be given for the three best designs. No promise is made to employ the author of the design placed first to carry out his design, but, if he should be so employed, his prize will merge in his commission. Further particulars may be obtained from Dr. A. Westphal, Blucherstrasse, 23, Berlin, S. W.

A CHURCH is being erected, under some difficulties, in the Falkland Islands, near Cape Horn. There is an English settlement there, called Stanley, of which probably few of our readers ever heard. However, Englishmen away from home are not long contented without a church to say their prayers in, and the people of Stanley have made up their minds to have not a church merely, but a cathedral, with a bishop and chapter, and have raised fifteen thousand dollars toward paying for it. Sir Arthur Blomfield, who is, if we are not mistaken, the son of a Bishop of London, has made the designs, and the materials are on their way from England. As there is no building material of any sort on the islands, it has been necessary to transport bricks, lime, cement, timber for the rafters, iron for roofing, and ready-made pews, half-way around the world, accompanied by two expert bricklayers and a clerk-of-works. As the brick, which cost ten dollars a thousand in England, paid twenty-two dollars a thousand for transportation, and other materials in proportion, the cathedral will be a tolerably expensive affair by the time it is done.

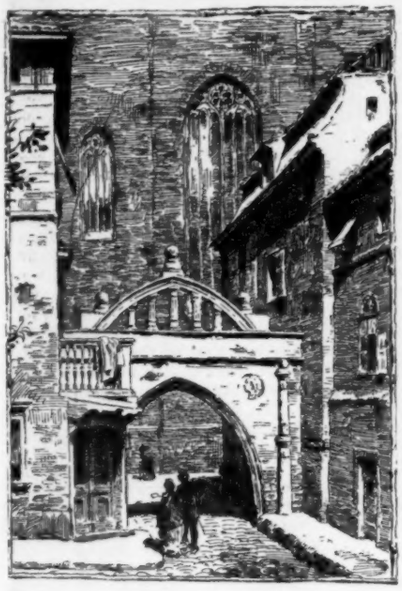
THE French have a theory about the payment of architects which is not without its charm, and which we find described in a particularly clear manner in a recent number of *La Construction Moderne*. Every architect knows that contractors in France have a peculiar method of bidding, consisting in an offer to do the work on which they bid for a certain discount from the official *série de prix*, or price-list, a document drawn up with great care, and revised from time to time, by a commission of architects and contractors. This official price-list give the rates to be charged for all conceivable kinds of building work, including a reasonable profit to the contractor, and is usually made the basis of payment for small jobs, such as are done among us by the day. In larger undertakings, however, the competition between contractors is sharp enough to induce them to forego a part of the profit which the price-list would give them, for the sake of securing the remainder, and so many considerations enter into the estimates that it is not unusual to have bidders offer to take a contract at twenty-five per cent, or even a greater discount, from the *série de prix*. Under our system, by which the architect's commission is based on the actual cost of the building which he designs the keener the competition among the contractors, the less is his pay. The French practice, however, for all Government and other important work, is to pay the architect his five per cent commission on the cost as it would be by the full official price-list, ignoring the actual cost, which is usually one-fifth to one-fourth less. In private work the law is not quite settled, although most of the decisions sustain the architect in claiming his fees on the full *série* prices in this case, following the rule established by a special decree for Government work, on the ground, as M. Ravon explains, that the architect's time and trouble are, by well-established custom, worth a certain percentage on the cost of the building which he designs, as it would be if paid for at fair rates, with a reasonable profit to the contractors concerned; and that, this being so, the fact that a contractor is willing to do his part for a small profit, or no profit at all, instead of diminishing the architect's care and trouble, increases it, as he has then reason to expect that the low-priced contractor will try to squeeze out an illegitimate profit from his cheap job by all sorts of tricks and frauds, and feels himself obliged to redouble his watchfulness to prevent these tricks from being successful. It is a question, M. Ravon thinks, whether the architect should not be paid more when the contract is made with the builder at less than the regular rates, and, at least, the builder's discount should not lessen the architect's pay. That this is an important matter for French architects, particularly those in the country districts near Paris, where the Parisian *série* is used, although the cost of materials and labor is less than in the capital, may be judged from the letter to which M. Ravon's article is a reply. The letter is from an architect, who was engaged to make an addition to an old building. He estimated the cost at thirty-six hundred dollars. The contractors agreed to large discounts from the official prices, and when the bills were all in, they amounted to seventy-six hundred dollars. The architect disallowed some of the claims, and fixed the value of the work done, according to the price-list, at sixty-nine hundred dollars. Applying the agreed discounts to this sum brought the net amount due down to forty-five hundred dollars, and the contractors took this, and were satisfied. The architect sent a bill, according to custom, for five per cent on sixty-nine hundred dollars, while his client offered only the same percentage on forty-five hundred, and the question was referred to M. Ravon's skill.

M. CHENEVIER, who has given much attention to the subject, presents, in *La Semaine des Constructeurs*, his idea of a safe theatre, which contains some novel points. M. Chenevier begins by saying that he does not agree with the modern theory, that the auditorium of a theatre should be provided with as many exits as possible. In his opinion, the stage is the only source of danger, and must be first made secure; and, if this is secure, there will be no risk of fire in the auditorium, and, therefore, no need of providing numerous exits from it. He acknowledges that this is just now an unpopular doctrine, and says that in his plan he has provided more staircases than he thinks necessary, partly in deference to the common prejudice, and partly for the sake of reassuring the minds of an audience, which needs protection from imaginary as well as real dangers. For the protection of the stage, he proposes to use the familiar appliances of iron curtains, standpipes, hydrants, signals and so on, and he would have the drop-scene painted on wire-gauze. The auditorium is without the usual ventilator over the chandelier, and is provided with a large number of exits, closed with light iron doors. The corridors are separated from the rest of the building by brick walls, and the staircases lead separately to the street. All the lighting is done by incandescent electric lamps fed by storage batteries. All the exits are to be constantly left open, and, as he says, there are to be no iron ladder fire-escapes, no doors that no one can unlock, no keys hung up behind panes of glass, or other terrifying and confusing appliances which people flying for their lives cannot understand or use.

ANOTHER competition is announced for a building at Lausanne, to be used to contain the scientific and artistic collections belonging to the city, as well as to accommodate certain departments of the University. This competition is open to architects of all nations, and five thousand dollars will be distributed in prizes. Particulars can be obtained by addressing M. S. Cuenoud, President of the Council of the city of Lausanne, Switzerland. The competition closes April 30, 1890.

FOR the sake of the many subscribers who receive their journal through the News Companies and other trade channels — whom we have made no endeavor to reach by circular — we will again draw attention to the fact that during the next year will be published an "International Edition" of this journal, the particular characteristics of which will be found explained on page xix. Any such subscribers who may wish to receive this larger and better edition, we ask to send on their subscriptions at once. We have already cabled an increase of our first orders, and there is yet time to procure an additional supply, provided those who have been in ignorance of the movement, or who have overlooked it, or who have hesitated how to act, will send in their subscriptions at once. We repeat this notification in the interest of all such readers.

MILLS AND MILL ENGINEERING.[1]



Doorway at Dantzic. From *Architektonische Rundschau.*

IT is obvious that many parts of the work of planning and building mills are substantially similar to operations in other branches of engineering. Our subject limits us mainly to points which are peculiar to or specially prominent in mill engineering. It cuts us off from the discussion of many matters of the first importance with which all engineers are acquainted, but leaves us a multitude of secondary or minor points which may have some novelty and interest for workers in other branches of the profession.

One advantage which the mill engineer has, preëminently, is that he has numerous opportunities to observe the results of many risky experiments tried by men whose knowledge, prudence and judgment vary greatly. Much can be learned from such observations, but it is not wise to generalize very dogmatically from a single failure — much less from a single escape from failure.

To begin at the bottom — it often becomes necessary to build high mills and heavy storehouses over arched water-ways much larger than ordinary conduits or sewers. Many of these water-ways, ten to sixteen feet wide, are built with wooden floors, sometimes subfilled with concrete, brick side walls sixteen to twenty-four inches thick and four to six feet high, and brick arches rising one-fifth to one-half the span, twelve or sixteen inches thick. It is obvious that the thrust of these arches must be resisted mainly by the earth back of the walls (which is filled-in, of course, before the centres are struck). This seems rather risky, but I do not remember any instance of failure or serious crippling in such a case. These arches are usually loaded with five to twenty feet of earth, and sometimes piers to carry twenty tons each are built upon them, wherever they chance to come. In good practice the arches are thickened at such places.

Single race-ways often take the water from two or three turbines, say 250 to 400 c. f s.; in which cases they are likely to be from twenty to twenty-five feet wide and five to eight feet deep, with side walls of rubble-stone laid in cement mortar and brick arches of about one-fifth rise and sixteen inches thick. Where mill columns come over such arches, it seems to me best to support them by trusses, independently of the arches.

Many mills are built on the banks of rivers, from which it follows, not infrequently, that one wall stands on good hard bottom and the opposite one on piles. At the points of change we are likely to have a deep foundation-wall on earth bottom, adjoining very short piles in soft material, and to feel some anxiety as to unequal settlement and possible cracking of the superstructure. But in the few cases which have come under my own notice I have not observed any such results.

In many cases the bottom on the river side is softer than on the other side. It may not need piles, but only a wider earth base in the foundation-walls. I have seen a few very old mills which were still settling and cracking from insufficient earth base on the softer parts of the sites; but I think these cases of long-continued settlement are rare.

In the very common case of the up-hill side of a mill standing on a bank wall with a surcharge of five to twenty feet of earth on the outside, these walls often yield slowly to the relentless pressure. For several months in every year a thick stratum of earth is powerfully expanded against them by freezing. When the earth thaws, it follows up any yielding which has occurred, and the process is repeated in every succeeding winter and summer.

An accumulation of a few inches of such movements in twenty to fifty years, which might not be specially noticeable or objectionable in a mere retaining wall, will seriously distort a mill — especially an old-fashioned, narrow and high one — throwing some of the walls out of plumb and straining their connection with the others; also throwing columns out and bringing the weights on to them diagonally instead of axially, and endangering the stability of small pintles at the floor beams, if such are used. Many and probably most old mills with unbalanced earth-pressure on one side have been considerably distorted in this way. The modern practice of building such bank walls with cement-mortar and draining the earth behind them will doubtless contribute materially to their stability.

The large dimensions of modern mills raise into importance certain considerations, which are often ignored with impunity in the case of buildings cut up into rooms of smaller sizes.

One of these is that an unbroken floor of three-inch plank, four or five hundred feet long, will change its length as well as its width, with changes in the amount of moisture which it contains. I have known a tightly-fitted lower floor of well-dried plank to expand lengthwise enough to push the end wall of a mill out and crack the side wall at the first window from the corner, with no settling, or any change except mere horizontal separation. The end wall was well fastened to the floors above, and as these did not gain moisture there was no crack anywhere above the first-story window.

On the other hand, I recently examined a mill nearly 500 feet long, which was floored throughout with planks just from the log. In drying, all the floors above the first-story shrunk from four to six inches in the whole length, and as they were not well fastened to the end walls, after bending these walls in an inch or two, they pulled away from them, leaving a gap of an inch or more at each end. Of course, the floor-beams were also moved toward the middle of the length of the mill and carried the columns along with them. Probably the ground-floor shrunk but little, leaving the bottoms of the first-story columns about in place, so that they were *canted* out of vertical perhaps two inches at the ends of the mill, and diminishing from that to nothing at the middle. They were about sixteen diameters long, so that an inclination of two inches would throw their end planes one-eighth inch out of level, leaving only small areas in bearing, with crushing pressures at the salient edges, and bending the axes of the columns into reversed curves.

If the columns had been made of cast-iron instead of wood, the diminution of end surface in bearing and the resulting concentration of pressure would have been vastly greater, owing to the rigidity of the material.

If the ends of a column are not plane and square with the axis, or if the surfaces against which they bear are not plane and level, the same mislocations of the pressures occur, and the column suffers still more by being bent wholly to one side instead of into reversed curves on opposite sides of the line of pressure.

It is evident that the consequences are the same when such mislocations of pressure are caused by poor work in the original construction, as well as by any subsequent movement. Probably there are many cases where bearing-surfaces, say nine inches in diameter, are open $\frac{1}{32}$ inch at one edge, which may be caused by setting a post one-half inch out of plumb, or by other poor work. This is too much for wooden columns, far too much for iron ones.

It seems rather probable that these poor fits materially lessen the resistance to horizontal vibrations of floors, which is often troublesome in mills where looms are beating.

It is common to cast the bearing plates with rims around them, forming sockets to receive the ends of the columns. These sockets effectually conceal the worst possible fits between column and plate, as made by the most careless builders, and also prevent the most careful ones from seeing whether the fits are good at first and whether they remain so. Such sockets at the lower ends of columns hold all the water that happens to reach them, and are thus very efficient in rotting the wood. I have traced rotten cavities made in this way several inches up from the base.

The ostensible reason for making these sockets is to hold the columns in place. But, ordinarily, a central projection, cast on the plate, say one and one-half to two inches in diameter and one inch long, fitting into an axial hole at the end of the column, gives security enough. If the column is bored for ventilation the hole is already there.

One of the worst *fumbles* ever made in mill-construction is in the matter of pintles for carrying the weight from a column down through floor beams to the column below, or between loose plates at the ends of such columns. These have often been made of iron cylinders about four inches in diameter and with rough ends. The ill-fated Pemberton mill *teetered* out its brief life on props of this kind.

A large building was recently erected near here with oak blocks five inches square, trying to act as pintles on cast-iron columns nine inches in diameter and one and five-eighths inches thick.

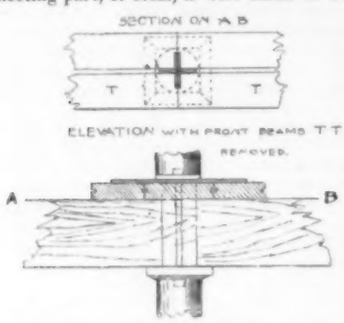
A high and very heavily loaded building stood for several years, near here, with T-shaped pintles having stems 2½ x 4 inches butting together in mortises through the floor beams, and each carrying loads from 200,000 to 300,000 pounds. As it is practically certain that in many cases the ends offset, more or less, at the place of meeting, and that many of them were *canted* so that their end planes were not in the same plane, the wonder is that very few of them failed, and the building continued to stand till it was re-enforced.

The method of cutting the beams short, and carrying the column down to a plate resting on the column below, which is long and strong enough to carry the beam ends also, is much safer when properly arranged, and answers well for storehouses.

[1] Extracts from a paper read by Mr. Edward Sawyer, member of the Boston Society of Civil Engineers and discussed at the meeting of the Association of Engineering Societies, and published in the *Journal of the Association of Engineering Societies.*

But for a good class of mill-work suitable pintles are much better.

A very little consideration will show that the end plates and the connecting part between them ought to be cast in one piece. The connecting part, or stem, is best made of cruciform cross-section;[1] and it should extend up to the top of the floor, carrying its top plate just above this level; so that the column above is favored as to dry-rot, and is above water when the floor is washed, and it also has the advantage of leaving the joint in sight. This requires a central boss on top for holding the upper column in place, as well as one below for the lower column. In extra wet places, like dye-houses, it is a good plan to carry the top several inches above the floor.



Finally, the castings should be centred on the ends of these bosses, put into a lathe and the bearing-ends turned off square with the axis.

I began to use pintles of this kind nearly twenty years ago, and have used thousands of them with entire satisfaction. They fulfil all the requirements perfectly, and there is no good excuse for not using pintles of this general type in all ordinary cases, or for using small prisms separate from the end plates in any case.

Many carpenters like to fit floors in very closely, especially top-flooring boards. Sometimes these are cut long and sprung in with the well-known action like that of a toggle-joint, so tightly that the ends of the boards are very noticeably *upset* against the irregularities of brickwork. This, of course, means a pressure of several tons per board. By accumulating pressure from several boards in this way, it is easy to bulge out a wall or to pull it apart longitudinally, making a crack from a window above to one below the floor which exerts the pressure, especially in the upper stories, where the walls are thinner and weaker than nearer the ground.

The non-expert public usually charges such cracks, as well as most others, to defective foundations, even when they appear far above the ground, and with no other rupture above or below them; in which case a very little reflection ought to show the absurdity of this notion.

This results largely from the intuitive feeling which most people seem to have that brick or stone walls will stand almost any amount of pressure, either compressive, tensile, bending or detrusive; partly also from the difficulty of realizing the meaning of words or figures representing very large forces. When represented by the gravitation of visible masses of matter like stone or iron, they affect the mind for something nearer their real value. People who are accustomed to move such masses, up to five or ten tons weights, are likely to have a fairly good conception of their magnitudes; but if they are not familiar with larger weights, either by moving them or trying to appreciate them mentally, all beyond that is merely indefinitely large; it makes but little difference in their minds whether you say twenty, fifty or one hundred tons.

Many mills for textiles are now made 100 or 125 feet wide, and in good practice they are well supplied with natural light — better than many narrow mills, in the building of which the importance of this matter has often been strangely overlooked.

Light from combustion is comparatively poor and costly. Where much of it is used for several hours in succession, as in large and poorly-windowed weaving-rooms, for instance, the vitiation and overheating of the air sometimes approach closely to the point where operatives of ordinary stamina can barely exist but have no vigor left for work. Doubtless their ability for work the next day is also lowered by this; often, also, by the colds taken on going out.

The superiority of electric-lights in this respect is one of their great advantages.

To secure good natural light in a wide mill, the stories must be high and the windows large, occupying forty per cent or more of the side walls, and leaving but little width of brickwork between them. Just above these tall and narrow masses of brickwork carrying the whole weight there must be large cavities in the walls to receive the beam ends. These conditions call for well-built walls of good thickness. As ordinarily made, such walls settle together considerably, and this must be taken into account if one wishes his upper floors (supported partly on the walls and partly on columns) to remain closely level. Window-sills are also more likely to be cracked, but this can be wholly avoided, of course, by proper precautions. If window-frames are built-in tightly the pressure forces the stools down at the ends and leaves them bent up in the middle.

Perhaps a few words ought to be said here on the controversy between high and low mills. All must admit that the objections to heights of six stories or more are of considerable importance, though diminished by having a good number of stairways, well located, and by automatic sprinklers, etc. As we are all aware, the case for one-story mills has been urged with the greatest vigor and ability here in Boston; but, probably, the great majority of manufacturers think the relative merits, as a whole, of this style of mill have been over-estimated, and do not believe that the balance of advantages generally rests with it. But however this may be, the agitation for some reduction from the old extreme heights is a good and useful one. In practice, however, the decision as to the number of stories must often depend largely upon the exigencies of the location, the character of the business done and other special circumstances.

One of the most satisfactory reforms ever introduced in the construction of mill buildings was the getting rid of all hollow spaces surrounded by woodwork. This improvement was begun fifty years ago or more by throwing out the old-fashioned floor-joists with lath and plaster under them and substituting the solid floors now in general use; and it was advanced a long step farther about thirty-five years ago by dispensing with steep-pitched roofs and substituting flat ones covered with felt, pitch and gravel. These steep-pitched roofs made bad fire-risks, at the best — very bad as ordinarily finished — and they were objectionable in other respects. At first the flat roofs were made with one-inch boards, requiring supports by joists not over two feet apart. A few years later, planks and beams were substituted, making the construction substantially like that of the floors, excepting the slight slope required. I understand that a member of this society designed roofs of this kind over thirty years ago, and began to build them in 1861 or 1862. It seems that the same idea occurred to others independently at about the same time. Like many other good things, it seems simple and obvious enough now; but no one acquainted with the subject can compare the steep roof and the flat one without a feeling of satisfaction amounting to positive pleasure at the superiority and fitness of the latter, in every respect.

DISCUSSION.

Mr. Edward Atkinson. — The danger of laying the top floor so close as to strain the walls by expansion of kiln-dried top floor has often been considered and guarded against. I am somewhat surprised by the statement made by Mr. Sawyer in regard to planks shrinking lengthwise so much as to tip the posts. Such a case has not come under my observation in a way to attract my attention. I have been in consultation with our Mr. Buck for the last month, in devising some method of adjusting posts by other devices in place of the pintles. . . .

There is yet a great margin for the work of the engineer. There is one problem to which I wish to call your attention. I brought it before the cotton manufacturers many years ago; to wit, the preparation of the air in summer as well as in winter. It is a singular fact that by a process of natural selection — probably without knowledge of the reason why — there are not now many cotton spindles in Manchester, England, where the art was first established. Many of the old mills are dismantled, and nearly all the spinning-mills are now along the crest of a ridge about 800 feet above the sea level at the edge of the moors which stretch away to Scotland. At that point the humidity brought in by the Gulf Stream is condensed, and while the rainfall is little more than one-half of that of New England the humidity is constant and very even. It is upon that that the work depends.

Many years since I suggested the preparation of the air, which serves only as an instrument for carrying moisture, prior to its introduction into the slasher of the cotton-mill, by passing it over ice so as to cool and dry it, and thus put it into condition to take up a great volume of moisture without being heated above 120 degrees Fahrenheit. If the cotton or woollen fibre is subjected to a heat above 120 degrees Fahrenheit, it is apt to become brittle. I also ventured to suggest taking the air for the spinning-rooms from the outer end of the tail-race, especially in the dog-days, so as to bring into the mill the air which had gone down with the cold-water, washed and reduced in its humidity to the point of temperature at which it may be found in the wheel-pit. An experiment in this direction is just now being made for the first time within my knowledge. Something corresponding to this was adopted by our Mr. Wm. B. Whiting many years ago, when he was a manufacturing agent in the mill of which he had charge, with good results. But we are very near the point where we can make the cotton-mill *a sanitarium!* The ammonia method of reducing the temperature of the summer air below the freezing point is now in common practice in breweries, cold-storage houses and meat-packing establishments. I am investigating this subject, and have lately put a plain question to one of the large machine-shops in the West where they make the ammonia cooling engines. I put the question in this way:

"At what price will you lay down a plant for furnishing a cotton factory 300 feet long, 100 feet wide, four stories high, twelve-foot post, with a constant volume of air at a uniform temperature of seventy degrees throughout the summer months, such air to carry the amount of moisture short of saturation which air at that temperature is capable of holding in suspension."

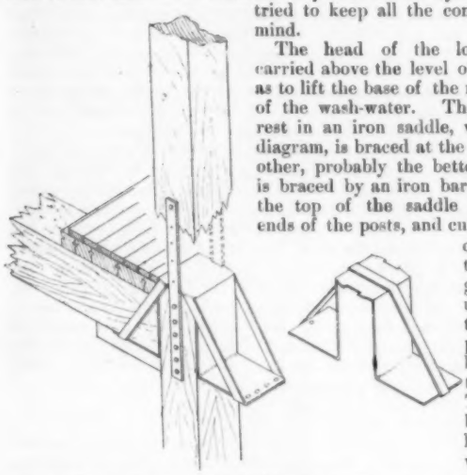
The proposition was received as if it were entirely commonplace, and they stated that the plant could be put down with all the fittings for $15,000. I am now following it up to see what it would cost to operate the machinery. I think there is a great field here, not only in the preparation of air and cooling it in the cotton-mill, but in all sorts of works, in offices and in dwelling houses, etc. . . .

We observe to our cost that nearly all existing arrangements for the adjustment of posts one above another are faulty, for the reason

[1] Obviously, this is not the best form for economy of iron, but the difference in cost is unimportant.

that if a single column is broken, as iron columns are apt to break under fire and water, or if a wooden column is burned, or if a part of the floor falls, the key to the whole structure appears to be destroyed or endangered. The strain upon other columns by the removal of a part of the beams, leaving the slender pintles unsupported at the side, weakens the whole structure and is very apt to be the cause of great damage to or of complete destruction of the mill building.

I now venture to submit a crude study of the adjustment of posts each to the other in two different ways. In this adjustment I have tried to keep all the contingencies in mind.



This is a mere suggestion. It is held by some mill constructors that the present base, cap and pintle constitute a better mode of construction than any saddle that can be made, and that no change in modern practice is called for.

It is also held by others that when floors or beams are so injured by fire as to endanger the posts, it would be better that all should fall together.

The head of the lower post is carried above the level of the floor, so as to lift the base of the next post free of the wash-water. The floor-beams rest in an iron saddle, which, in one diagram, is braced at the sides; in the other, probably the better method, it is braced by an iron bar carried over the top of the saddle between the ends of the posts, and cut into the end of each floor-timber, if single timbers are used, or between the two pieces, if the beams are in two parts. This saddle, being made a half inch wider than either post, will have a slot cut at each side, through which slot a vertical strap of iron is to be carried, which is to be bolted to the two posts.

A dog may be introduced in the saddle by turning up a part of the end, or in any other way, so as to catch on the underside of the timber where it rests upon the saddle. Underneath the stirrup, which is exposed upon the underside of the floor-beam which rests therein, a two-inch plank may be fastened to protect the iron from the heat of a fire, or additional strength may be given by placing a hackmatack knee under the stirrup, so as to strengthen as well as to protect it from heat.

The end of the floor-timber cannot well be rounded, as it may be where the end of the timber enters a brick wall; yet I think this construction, braced as it would be in every way, would stand, even if the floor on either side of it were burned away, or if the next post were destroyed.

I submit these diagrams merely as studies, subject to criticism and suggestion, and shall presently have all the stresses computed.

I think a good deal of work has yet to be done in the application of hackmatack knees to the support of floors. They have several times been introduced into high and narrow mills at our suggestion, in order to stiffen them, but have not yet been used to any great extent in original construction, except in one-story factories.

MR. C. J. H. WOODBURY. — Another defect of construction, occurring in storehouses more frequently than in mills, is placing wooden bolsters over the columns, instead of iron caps and pintles. The transverse contraction of these large beams in the process of seasoning varies from three-eighths of an inch to double that amount, and, therefore, throws the floors of the building out of level to that measure, and the error is a cumulative one from story to story. There is also a liability of compression of the beams when supported directly on columns, as the experiments for the Factory Mutual Insurance Companies on the testing-machine in the United States Arsenal, at Watertown, showed that the resistance of timber to transverse compression was about one-third of its resistance to longitudinal compression, and, therefore, the cap on the top of a wooden column should spread out to sustain an area of timber three times that of the end of the column.

While at Geneva I saw a watch factory under construction which was being built of iron and concrete, the motive being similar to that of the design of the iron mill exhibited to you this evening by Mr. Grinnell, although the method of carrying out the design was far different. The ends of the mill were of stone, and the walls of upright I-beams extending between the windows, and of concrete from the windows to the floor. The floors were made of joists placed between the I-beams and the boards covered over with cement. The iron window-sashes were fixed, but a small portion of the upper sash would swing for purposes of ventilation. The roof of this mill was a square roof consisting of tiles resting upon a joisted frame and inclosing a hollow, unused attic. The partitions through the mill were made of tiles set on edges and joined together with plaster-of-Paris.

There did not appear to be any controlling system of mill-design in proportioning and arranging a building for the specific use of manufacturing in the manner customary in America.

MR. STEPHEN GREENE. — In the few moments I may take I may simply touch briefly upon one or two problems in mill-engineering. One of the somewhat difficult problems we meet in mill-construction is to secure a satisfactory floor, where no space can be allowed beneath. Our experience has taught us that the most satisfactory results can be obtained in such cases by first laying a concrete composed of gravel and coal-tar materials, and upon this completed surface lay plank either of hard pine or hemlock simply fitted together. Upon these plank, which should be no less than three inches in thickness, the top flooring may be laid and should be laid across the plank. The cases are very numerous where floors have been laid upon concrete and have completely failed. The cause in nearly every instance has been due doubtless to the inserting of timbers in the concrete, to which the planking has been nailed. This method is to be condemned, as it allows dampness to enter, which insures a speedy destruction of the floor.

MR. JOHN R. FREEMAN. — Among the interesting points brought out by Mr. Sawyer's paper on mill-engineering is one which may well serve as a text for more extended comment, and to which the attention of some engineers and architects should be forcibly directed.

I refer now to his illustrations of the fact that by the seasoning of timber in an extended floor a distortion is liable to occur, and often does occur, which may draw certain of the pillars out of the perpendicular slightly, but yet enough to materially change the condition of the application of the load, and to force the bearings at the ends of pillar out of the condition of evenly distributed contact into the condition of contact all near one side.

I have myself seen numerous instances where this has actually happened, and where unquestionably the load was all applied to one side of the centre. Not only have I seen this uneven bearing caused by the endwise shrinkage of long stretches of plank-flooring in factories, but also in a few instances by the twisting of heavy cross-grained timbers to which the pillar cap was bolted, and also by unequal settlement of the opposite side walls of a mill.

THE KNOCKENHAUER AMTHAUS.

Monument to the Prince Consort, Finster Lawn, Dublin.

WITH a perfectly constructed model of the façade of the Knockenhauer Amthaus, the Willard Collection possesses a specimen of one of the finest of German types. This elaborately carved and decorated timber building of Hildesheim is among the most remarkable of its class throughout Germany in its combination of ornament and constructive features. The reproduction of this celebrated work for the Metropolitan Museum of Art, is at one-tenth scale, with coloring as in the original. This model was made and finished in polychromy, by Herr Küsthardt, a sculptor and archæologist of Hildesheim, who was employed by the town a few years ago to repair the damages caused by a fire and whose carefully measured drawings and sketches made at that time facilitated an accurate reproduction.

In technical character the Knockenhauer Amthaus is esteemed by architectural archæologists as an exceedingly perfect work of art. Through its growth from the Gothic, this edifice shows a profile for the greater part of that period. For the German artist's *ornamentik*, fancied as the animating element of the construction, its forms with few exceptions are taken from the Renaissance at its richest stage, or when it showed the highest product in wood-carving, with all the niceties and beauties of such work to be perceived only through careful examination. The building is thus between two periods, not appearing harshly united in it, but with the whole well-harmonized. With the decoration left to the Renaissance, and with such severity expressed in the Gothic construction as is suited to the character of a wooden building, the unity of impression is not lost. According to competent opinion the observer finds it difficult to recognize the presence of two different styles.

The question is philosophically considered by Karl Lachner, how

it was possible without any intermediary movement that the finest and noblest forms of the Renaissance with the Greek character could have been brought into such combination. In his learned discussion of the subject, this author reviews a certain interesting story, by Dr. Seifart, in his "*Blätter und Blüthen*," of a man of Hildesheim who had acquired the mastership of art in Nüremburg from Veit Stoss and who had shown the great force of his ability in this edifice, and concludes by informing us that it is all a fiction. Of the names and lives of the great artists engaged upon this building nothing more is known, as he insists, than of others in that city. An account in complete detail of the great structure erected in 1529 by the guild of the butchers, is contained in "*Die Holzarchitektur*" of this accomplished scholar.

As explained in that analytic review, the edifice received the name "Amt-haus" because the combined societies of the shoemakers, tanners, bakers and butchers for whose use it was built, had the name "courts" in contradistinction to the "guilds." These courts had special privileges granted to them by the bishops of Hildesheim in the thirteenth century. In connection with the guilds they alone had the right of electing the officers of the city, the courts having always precedence and the more extensive rights. Their dependence was on the bishop for approval of these rights and only in a slight degree on the council of the city. The esteem of the courts was so high that the "Geschlechter" did not hestitate to join them. As the guilds endeavored to beautify their houses, so in a far higher degree the courts determined to do the same.

In the principal situation of the city, opposite the Rathhaus, the courts of the bakers, tanners, shoemakers and butchers, erected their fine building, excelling even that of the councillors of the city; but this did not meet all the wants of the societies; in two different places other large court-houses were built, thus showing the extent of this element with the citizenship. One of these buildings, erected in 1570, yet stands; the other, erected in 1541, was destroyed in 1881, by fire. The emblems in each were different. The principal court-house, on the Marktplatz, received as an emblem a figure of the Lamb of God carrying a flag, significant of the near relation of the court with the church. The building on the Andreasplatz had as an emblem the head of an ox on a shield held by two spearsmen, which, still preserved in the museum, shows that the period of the Reformation had already commenced, as the signs of the Church had disappeared. The third building on the Burgstrasse is thought to have had most probably a representation of Maria Magdalena as its emblem. The court of the shoemakers and tanners had also two buildings, one, with the so-called shoe-court, stood where Gerstenberg Brothers now have their bookstore; the other, built in 1595, stands yet on the bridge over the Innerste opposite to the Johannes Hospital. Its situation on the water was necessary to the trade of the tanners. The court-house of the bakers on the left-hand side from the court-house of the butchers was torn down in the last century.

On the Marktplatz remains only the court-house of the butchers (Amthaus der Knockenhauer) once also in danger of being torn down. From the use of the building for all kinds of storage the interior was greatly damaged, and so led to the suggestion that it should be put out of the way; but finally through the influence of Senator Römer one of the best works of German art has been restored. In 1852, it was bought by the city, and at the same time renovated in the most successful manner. The old painted panels were presented to the Museum, and new ones, painted in the style of the sixteenth century, replaced them. The building now contains the city savings-bank institution and the public library.

The plan has been somewhat changed with the renovation, both in the arrangement of the different stories and of the staircase. The first story formed a large hall for the assembly of the courts. In the higher stories were, partly, apartments for residence, partly large magazines, which were used by the associations. A winding staircase in the northwest corner with very low stairs led from the basement to the upper stories. This was torn down and a double-armed staircase erected. Of the furniture, a kind of case or cabinet painted in bright colors has found a place in the Museum. Very interesting was the plan of the lower story, of which the hall, remaining the same, and having a width of 2.45 metres, runs through the centre on the street level. This connects the market-place with another smaller place, the Hoken, separating the building throughout its depth into two distinct halves, and seeming to have served as a thoroughfare. At the present time stores are on both sides. Formerly the rooms opened from the hall, which are now closed in that direction, and divided into smaller so-called *fleisch-scharren*. In these the butchers had their stalls. The arrangement in trap-construction and sliding windows was ingenious. Stores of the present kind were unknown, in place of these being the *scharren* or booths, erected in the court or guild houses, or near them, in a fashion still to be seen at Frankfort-on-the-Main, where butchers occupy whole streets with booths close together.

Under the ground-floor of the Knockenhauer Amthaus were large cellars, forming cool preserving places for the meat, but for killing the animals no room was provided in the building itself, a slaughter-house, as is thought probable, being next it.

On the corner of the Rathhausplatz and the Marktstrasse, this edifice offers two different views. One of these is the gable side toward the Platz, of which the Gothic construction shows slight changes from the original with its stone foundation. The lower story is 3.40 metres high. An intermediate story is not divided by the hall. Above this is the first floor, with high rooms nearly 3.5 metres high, and the second story has a height of 2.5 metres. Two more stories, projecting on the gable side, are somewhat less in height. Finally, the triangular upper portion of the elevation, also projecting, contains two more stories. The piers and columns of the ground-floor extend to the first story. The construction of these with three-cornered moulded forms of ornament is entirely Gothic. On each lower corner pier are three-fold caps forming an angle at the corner. The ornament of the upper parts of the columns was originally carved with Gothic profile, which apparently did not satisfy the decorator, and heads were carved and applied at the tops afterward, but not covering the whole, and the Gothic profile may be recognized on the sides. The Kopfbund is a capital of Gothic form, but with ornament executed in the style of the Renaissance, and in a similar manner a modification of the Gothic is shown in horizontal bands of carving of rich character. The same idea of connecting figures with foliage is translated in the language of the Renaissance in a finer style than elsewhere. With the exception of the capitals and the window profiles, everything is Gothic, this motive being most pronounced on the side toward the Marktstrasse, showing beautifully-executed ornament of foliage. On either side, the lower horizontal band is covered with symbolic representations, with a height of a little over thirty centimetres; at the limits, the emblem of the Amthaus, the Lamb of God, holding a banner with one foot. On both sides the ends of the beams are visible, the space between the emblem and these parts of the beams being covered with two eagle-heads. On the left-hand side of the emblem is a humoristic scene: two little angels are seated on ornaments in the forms of fishes ending on the one hand in an eagle-head and on the other as foliage, the whole giving an impression of ridicule of the old tournaments. Then follows the killing of an ox: the butcher holding the axe rises out of a spiral, and is associated with another figure of a man who holds a long knife in one of his hands, and in the other hand the tail of a winged griffin. On the opposite side of the griffin appears the figure of a man terminating in a spiral formation, who spears the griffin, who tries to defend itself with one of his fore-claws. A neighboring winged figure analogous to the former blows a twisted horn, forming the last of the series. In the centre, the monogram of IHS, carved on a shield, is held by two chubby angels, and on either side of these is another angel with an ornamental trombone. The other half of the series is symmetrical with this in composition, but with figures differing somewhat from those of the first part, as, instead of the player on the trombone at the left, is at the right a drummer. The next figure in connection is armed with a shield, and is sending his spear into the mouth of a griffin held at the hind-claws by another standing figure, and the final scene shows the cutting-up of oxen. The forms of the leaves are small, and yet are so distinct as to be visible from the street, and with lines extremely perfect. Special notice has been taken of the effect of the reeds, and not less of the outlines and the ribs of the acanthus leaves, which appear for the first time in this type of German building, and which are compared with similar Greek forms.

The heads of the figures are so lifelike, the whole division of space is executed in so masterly a manner, that these works have been pronounced without hesitation to be the most excellent of all times of art. On the upper stories are found also the acanthus leaves and a kind of rose leaf, the forms of these, on account of their greater distance, being in a little stronger relief. As a remarkable feature, the ornament combines naked human figures not found before in Gothic plastic, leading to the expressed belief that the master who dared such production at that time must have had a high rank in order to break with old traditions, and that he could not have learned his art in his own city. Of these figures, the greater number of angelic ones stand amidst foliage with musical instruments of varied sorts. Mingling in the ornament are forms of fruits, flowers, animal and human heads. The panels contained heads with Gothic foliage painted. On the right hand of the gable side was a four-cornered construction of iron rods projecting toward the street, supported by an ornamental form in iron. On its ends were borne pans that served for burning pitch-wreaths at festivals in order to light the whole place.

THE ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

ENTRANCE TO THE WESTERN RESERVE MEDICAL COLLEGE, CLEVELAND, OHIO. MESSRS. COBURN & BARNUM, ARCHITECTS, CLEVELAND, O.

[Gelatine Print, issued only with the Imperial Edition.]

BUILDING AT THE CORNER OF BEDFORD AND KINGSTON STREETS, BOSTON, MASS.

It was in this building that the great fire on Thanksgiving Day started. See "Lessons from the Fire," elsewhere in this issue.

COMPETITIVE DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MR. H. L. WARREN, ARCHITECT, BOSTON, MASS.

HOUSE FOR F. J. HECKER, ESQ., DETROIT, MICH. MESSRS. SCOTT, KAMPER & SCOTT, ARCHITECTS, DETROIT, MICH.

THE ALGONQUIN HOTEL, ST. ANDREWS, N. B. MESSRS. RAND & TAYLOR, ARCHITECTS, BOSTON, MASS.

PROFESSIONAL CONQUEST.[1]

Doorway at Dantzic. From *Architektonische Rundschau.*

THERE is a field for professional conquest in view. Its acquirement will be fraught with perplexities and difficulties. Its occupation is imperative, if the architecture of this country shall soon be up to a creditable standard of merit. The building enterprises of the country, so far as all work of a public character is concerned are in the hands of, and directed by persons who have no special qualifications to determine either what should be built, or how it should be done. When a building is to be erected, instead of its being the custom to have it controlled by architects of the country, or by some persons skilled in building matters, it is usually put in the hands of a board or committee from which all architects are carefully excluded.

To introduce a different practice, and by this means make it possible to eliminate the faulty, systematize, harmonize and improve upon the meritorious in our public architecture, is a field for professional conquest. It is a field worthy of our best efforts to control. It can be gained only by sacrifices commensurate with the importance of the expected result.

Designs for buildings are secured either by competition or otherwise. For the present and likely for many years of the future, a considerable share of our public buildings will begin their career through competition of one kind or another. As now conducted competitions are not only not conducive to the highest achievement in the architectural sense, but are an incubus upon the profession. The excuse for keeping up the practice is two-fold: First, to give everybody a chance, to afford the younger members of the profession opportunities to measure arms with those of greater experience and reputation. Second, to obtain for a given building the best possible design. As to the first, the profession will not object to a decrease in the number and an elevation of their standard. As to the second, conducted as they are, the object sought is not attained. The chance to select a better design than any given one obtained without competition, is lost by reason of the fact that the average commission which makes the selection is not qualified to determine which design should be selected. I speak, of course, of the great number of competitors which constitute the rule, not of the few exceptions where experts are called in and designs submitted under a nom-de-plume. I think it is fair to say, as a rule, that if the best design in a given lot submitted be adopted, it is an accident rather than a likelihood. The buildings for which designs are obtained by giving commissions direct, to a certain extent escape objectionable results of competitions inasmuch as there is usually free and full interchange of thought between the architect and those in charge, and by means of this, the architect has a more favorable opportunity to control the whole character of the enterprise than where its general outlines have been made up as a target for the competing designers to shoot at.

The whole system of placing the management and direction of our buildings in the hands of persons who possess no special qualifications for it, whether they obtain designs by competition or otherwise, is a mistake. It is a wrong against the public itself, which we are professionally bound to right as soon as we can reach the ear of those who control such matters. The average board or commission is made up of intelligent men in other lines of vocation, and if called upon to decide anything in relation to their own business could do so with a fair prospect of having it properly and correctly done. But when the plan for a building comes before them, no one of an average board can tell whether a building erected after the plan would please him or whether it ought to please him. No one of them could tell whether it is probably the best thing which can be done or not, — and no one could tell, if it was the price of his eternal salvation, whether a building erected after the plans under examination, would stand up or fall down. To say that this is ridiculous is to characterize it in terms entirely too mild. What commission anywhere without legal talent would undertake to decide a question of law? What board without obtaining a physician would be willing to decide a question of medical jurisprudence? What commission without a musician would undertake to decide whether a piece of music had been rendered perfectly or not?

What man anywhere would be willing to either give or accept such authority, and with it the responsibility in any of these matters? How different the whole face of affairs when you come to the subject of architecture. The public believes it necessary to grant, and those selected think it proper to accept, such responsibility. The result is what would be inevitable if the same lack of business sense should be exercised in any other direction. If you answer that these boards either by competition or otherwise, engage an architect, and trust to him and depend on his ability and judgment, then I will ask you, what is the use of the Board? Why intrust a commission with something everybody knows it knows nothing about, instead of putting it into the hands of people who could reasonably be expected to understand what was before them? If there is any use of having anybody but the architect rule over the matter there is use in having somebody who can be an aid to him instead of a hinderance. If, in order to have done the best thing which can be done, it is necessary to procure assistance for the architect, it is certainly proper to have such assistance possessed of some idea of what should be done, and what a given plan and specification will bring out when carried into execution.

It may be claimed that the architect does control the whole matter so far as the builder is concerned, that the board or committee is only expected to attend to the formalities and the business part of the work. I dare say that in some few instances this is true. If it was always true, one of the objections to the present system would be removed, such cases are rarities, by no means the rule, when the architect is left free to use his best judgment in all things pertaining to the building. If in all cases of competition the designs were selected by a board of competent experts, and where an architect is employed his design should be his own, not that which will please the committee, much of the harm would be avoided. But even then, the benefit of intelligent counsel and advice which would be valuable to the greatest architect in the country and still more valuable to the younger members of the profession — would be lost. No man anywhere is so omniscient that his work would not be better for the criticism of a board of men of his *own* profession, even though something less than himself in ability. This would be gained under the system I suggest. Upon the other hand the work of the weakest member of the profession is not likely to be improved by the suggestions of the average board. This contrast measures the difference between the present system and the state of affairs after this field shall be won. Again, in the last twenty years much has been done to unshackle the hand of the designers, but this same unloosing of bands turns him into a field chaotic with historic design which is to supplement and guide his invention in the work of the future.

One of us gleans from fields of certain ideas; another, other ideas; another, still other ideas, each following a tangent for himself; some learning better than others, but nobody learning so much as all.

If we are to have a national style these lines of divergence must be brought to a parallel; the simply odd, the uselessly picturesque, the servility of copyism and the sterility of unstudied crudeness, from the work of each, such must be excluded.

Our work must tend toward a crystallization of the best to be found or invented. If this be true I know of no one thing which would be a more potent agency in its accomplishment than the adoption of this plan.

The use of boards instead of individual experts and counsellors will broaden criticism, give decisions a greater weight of authority and rid them of any supposed bias in favor of, or against any particular style.

The one great fact that the final authority as to what shall be done on our public-building enterprises is left to such persons as now control them, accounts to a very large extent for the blunders committed and accounts for the fact that the grade of our public architecture is not up to what it should be. So long as it remains in such hands it can never occupy that position in relation to the architecture of other countries to which it is entitled. I take it as indisputable in the interest of our profession — the interest of architecture of the country and the interest of the general public that a great change is desirable in this whole matter. But how can it be brought about? All may recognize that we are in the woods, but who knows of a pathway that leads to the sunshine? All can recognize the great work to be done, but who is able to cope with the difficulties we shall encounter in doing it? The present system is strongly entrenched in public favor. No matter how willing a public official may be to acknowledge his inability, he is immediately offended if some one suggests that a professional adviser be called in, and if he should even consent to that, he is quite sure to have it understood that it is only *advice* and not final *judgment* which he accepts.

An architect going into competition will ordinarily greatly jeopardize his chance of success by mentioning to a member of the board the fact that he would be glad to see the designs submitted to

[1] A paper read by J. W. Yost, architect, Columbus, Ohio, before the Convention of the American Institute of Architects, at Cincinnati, November 21, 1889.

a board of experts for decision. There is much more than merely the question of deciding which of a given number of plans shall be accepted which should not be in the hands of boards without education in matters of architecture. The control and management of the entire enterprise, everything that is included in the words "How to build, when to build, what to build," should be left to the control of the profession entirely, not merely submitted to them for advice and clerical services. The idea of an architect preparing plans for a commission of architects and submitting plans in competition for a board of architects to decide upon, may be a new idea, but it is a good one nevertheless.

If an important building enterprise, it is necessary to have an architect of skill and ability, it is by no means improper to have the value of his services supplemented by the advice of men who know as much about what is to be done as he does. It is written that "In a multitude of counsel there is wisdom," and matters of architecture were not excepted from the law. When we undertake to improve upon the present practice we are at once confronted with difficulties.

The matter of expense must be taken into account, boards of professional men who make their living by their calling are not likely to render services such as described, without just compensation. The public is just beginning to appreciate the fact that the five per cent paid for the service of an architect is money well expended, but it will take some little time to bring the public to believe, that two or three per cent more can be paid out to advantage in securing the service of such boards as I have described. We must establish the fact that this additional expenditure is, after all, a great economy, before the public will be likely to accept it. That it will result in not only bettering the architecture but actually saving money, is as clear as anything need be, when all the facts are considered. It will, however, take some money out of public officials who heretofore have acted in charge of building matters, and they will seriously object to having it done.

I see, however, no insurmountable difficulties in either of these directions. We have brought the public up to believe, and that within the space of a few years, that their interests are best subserved by employing a competent architect, even in small enterprises, and in less time we could demonstrate the economy of the practice I have suggested, and through the pocket-nerve of the public, could compel officials to accept the situation. There are, of course, boards in charge of new buildings who render their services, such as they are, without hope of financial reward; but even then it would be entirely within the range of possibilty, even probability, that a board of competent persons could save in the actual cost of the building, to say nothing of its value when once erected, much more than the probable two per cent, which their services would cost. But how are such boards to be found? Who is to select them and who shall be ready to serve when requested? At first the question seems difficult, and, in the present state of our profession, next to impossible, to answer. But we are not at a "stand still." Every demand for such service would in a few years be abundantly met. If you ask me now to name the persons who shall serve in this capacity, I am not able to answer you. I think it must be frankly admitted that at this time there is no set of men specially qualified for and desiring to hold such situations, but open the way for such work and the time will be short until the supply will be equal to all demands. It will be impossible now to lay out any plan for carrying these ideas into effect which shall not have to be altered to meet future requirements as experience develops them. I think no man is wise enough now to foresee all the difficulties, which might arise in undertaking to substitute professional for non-professional authorities in building matters. Judging by the experience of the past it will be some years before we could perfectly carry out the reform. But we are growing in that direction.

I know that we have no national style of architecture, no complete harmonizing of views as to what direction the detail in our design should take. I know we have had too little personal affiliation with, and too little friendship for each other, particularly in the newer portions of the country. I know we are unmerciful critics of each other's work — of everything not in accordance with our individual ideas or the vogue of the time. But for all that we are fast becoming less biased in our judgment and more reasonable in our treatment of each other and of each other's work. We are rapidly approaching a toleration of differences of opinion. We are speedily coming to realize the fact that if we have no respect for each other and the work of each other, the general public will have still less for all of us. Some of us may not take kindly to criticism; others may be disposed to resent the criticism of a professional board as an intrusion upon the "sanctum sanctorum" of the designer. Some of us may prefer to be allowed to convince an ignorant committee of the superiority of our ideas, some of us may not think any one else ought to have the impudence to make a suggestion in regard to what we have in hand, but all these cases will be rare, and as criticism becomes more intelligent and the members of the profession are brought up to entertain a better feeling for each other, they will practically disappear. As we become better educated and more skilful in our own work, we will be still more able to recognize merit in the work of our brethren. When we shall possess sufficient professional patriotism to see our highest personal advantages in the greatest possible improvement in the architecture of our country, a foundation will be laid upon which we can build our work and ourselves up to the standard of the old masters.

SOME LESSONS OF THE FIRE.[1]

Doorway at Dantzic. From *Architektonische Rundschau.*

THE crude memoranda that I have been enabled to make in the brief time available are not offered in any hope of instructing, but rather as suggestive points for fuller and abler treatment by others. In speaking clearly to the purpose, it is impossible to avoid some strictures on the work of members of our craft, both living and dead; but they are made simply as a necessity, and in the broadest spirit of charity, and with a full knowledge that under like conditions the same results might have followed in our own work. How far in the buildings in question the architect may have been limited in expenditure or interfered with in arrangement and construction we neither know, nor is it for the present purpose at all essential to inquire.

In view of the weight of responsibility hanging over us, architects should be the last to be hypercritical or censorious of each other. It is a matter of regret that the reverse is too often the case. No one with a long record of practice but has reason to be thankful if no great loss of property and no loss of life can be laid at his door, for in these matters it is not always the careful and conscientious that avoid censure.

The relations of the architect to the public are peculiar. He is the paid servant of his employer, but he is also in a certain sense the unpaid servant of the people. At any rate, he is liable to be held so the moment he endangers their lives or property. It is, therefore, most important, even from a selfish point-of-view, that we should unite in the protection of each other against all injustice or oppression; that we should labor incessantly for the education of the people in matters relating to building; and that we should earnestly promote a public sentiment, whether it take the form of written or unwritten law, that shall favor all reforms in construction and condemn all innovations that are dangerous or in any way an invasion of popular rights. And this must be done at some expense of time and money, and often at the risk of personal sacrifice. All new things are not necessarily improvements, and a step backward may sometimes be better than one seemingly in advance. All true progress is slow. There is a certain general average in nature and art. The greatest are not so very far above their fellows, the least not so low as to be altogether contemptible. There is no art whose sure steps have been slower than the art of building. There is none where all extravagances are more certainly condemned within reasonable time. Too often the inexpediency of wrong methods is emphasized by some great catastrophe involving loss of life and property, and such an one has been brought home to us with peculiar force during the past week. In the fire of November 28th the loss in money was about three and one-half millions of dollars, but, worse than that, the lives of several of our gallant firemen were sacrificed by the falling of walls that should not have fallen. Indirectly, as citizens, we shall suffer our share of the general loss, but directly, as a body, we are far greater losers. We are held responsible for methods of building proved to be hazardous, and assumed by many to be the best we can do at any reasonable cost. It is only by the prompt and full instruction of the public, and by taking an immediate lead in measures for improved construction, that this stigma can be removed.

It is not enough that we expended time and money liberally to procure for the community the present safeguards in the shape of statute law. We must labor incessantly for further improvement, and must not be content to keep abreast of the times, but to strike out new paths and lead in all methods for improved building.

Let us consider briefly the construction and arrangement of the buildings destroyed, and especially the one in which the fire started, the nature of their contents and the progress of the fire.

The Brown-Durrell Building, on the southeast corner of Bedford and Kingston Streets, had an unbroken floor-area of 23,000 square feet, and was six stories, or about eighty feet, high. Bedford Street, at this point, is forty feet wide, and Kingston Street fifty feet wide. The ceilings, including girders, were plastered on wire-lathing, and there were the fire-stops called for by the law. The floors were supported by unprotected iron and wood columns. The entire front was of granite backed with brick, but the two lower stories were practically all glass, the four stories over being supported by two stories of cast-iron columns and slender granite piers connected at the top by cast-iron girders. These girders were veneered with granite on the face, and protected on the back by brickwork and underneath by plate-iron. These were objected to as a constructional feature by the Inspector of Buildings before their use, but after tests, by loading only, they were used. To the surprise of

[1] A paper read by Mr. John A. Fox, at the meeting of the Boston Society of Architects, December 6, 1889, and printed in accordance with a vote of the meeting.

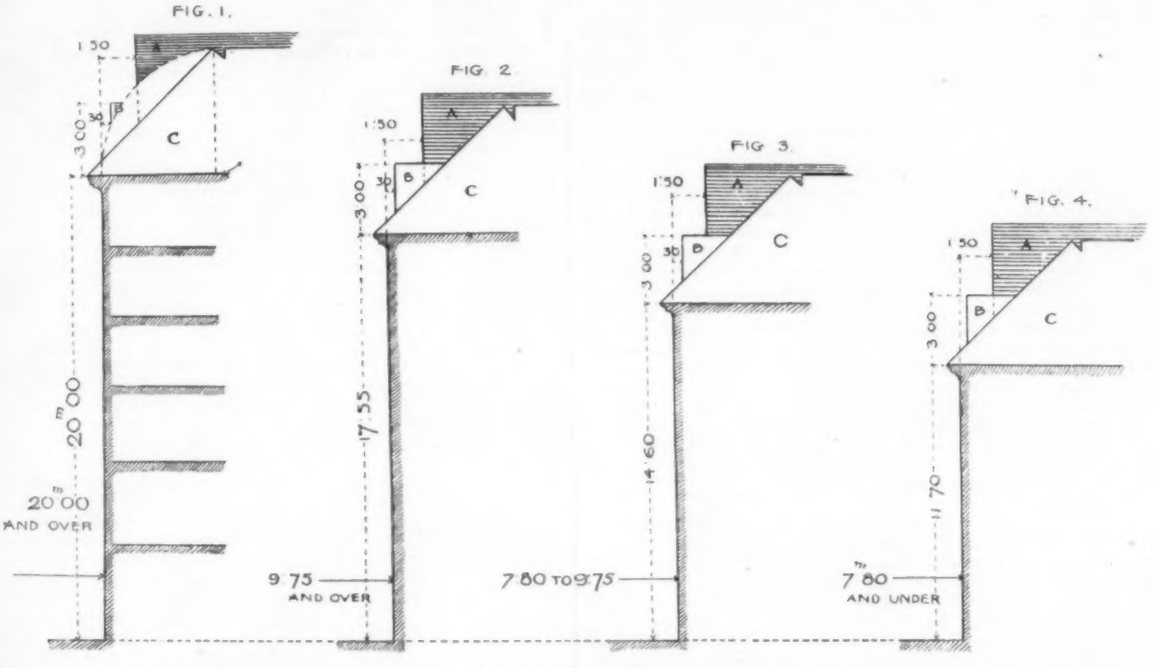
most experts, they show no signs of being seriously injured by the heat, which may, perhaps, be owing to the collapse of the building at an early stage of the fire and to their partial protection. The second, third and fourth floors were stored with what are technically known as "small wares," skilfully arranged on counters, to sell — or to burn. These floors were connected at several points by stair-cases and light-shafts. There was also storage in other portions of the building of rubber and miscellaneous goods.

On the opposite corner of Kingston and Bedford Streets stood the well-known Ames Building. This building was massive and costly and of the mill-construction throughout. Its floor-area was about 8,000 square feet, practically unbroken. The roof was steep and high and slated. The front was of brownstone. Although more solid in its first and second stories than its opposite neighbor, still the wide arched opening extending up through two stories, and with only wood and glass filling, were altogether too large for its location and uses. The goods in this building were hats, hosiery, furs, etc.

Here we have the key to the whole situation. Extensive and unbroken floor-areas piled with inflammable goods. High buildings allowed to override too much the immediate objects of architectural effect or practical convenience for working" — which is about the same line of argument used against all measures of safety requiring trouble and expense. Of course, Captain Shaw looks at building from the point-of-view of a specialist — but he is of the sort of specialists to whom people are disposed to listen.

A leading insurance authority estimates the gross fire-tax of the United States, including fire-departments, insurance expenses, a part of cost of water-works, etc., at a minimum of one hundred and eighty millions of dollars in a normal year in which no great conflagration occurs; and the actual loss at a minimum of one hundred millions. One-half of such a sum invested in building annually would be of considerable interest to architects. Is it not a matter of personal advantage, as well as of public spirit, when we lend efficient aid in reducing the fire loss?

What the English critic calls "practical convenience for working" is a bad suggestion to come from an architect in this connection. "Practical convenience," so called, is often the worst enemy of good architecture. It was this that on the Ames Building covered



CONDENSATION OF THE LAW OF JULY 27, 1859, REGULATING THE HEIGHT OF BUILDINGS IN PARIS.

THE height of buildings fronting on public streets is determined by the legal width of such streets and is measured at the centre of the building, beginning at the sidewalk level and including all entablatures, attics and other features built on the line of the front wall.

This height may not exceed 11.70 m. [38.37 ft.] on streets less than 7.80 m. [25.58 ft.] wide, Figure 4.

14.60 m. [47.88 ft.] on streets between 7.80 m. and 9.75m. [25.58 ft. and 31.98 ft.] in width, Figure 3.

17.55 m. [57.56 ft.] on streets 9.75 m. [25.58 ft.] wide and over, Figure 2.

On streets 20 m. [65.60 ft.] wide and over, the height may be carried to 20 m. [65.60 ft.] but in no case shall the building contain more than six stories including the entresol, Figure 1.

The height of the ridge above the cornice shall not exceed half the depth of the building, including the cornice projection.

The profile of the roof on the street side shall not pass beyond a line running at 45° from the outside of the cornice [C].

On boulevards, quais, public squares and streets not less than 15 m. [49.20 ft.] in width, and also in interior courts this line of 45° may be replaced with an arc having a radius not greater than half the depth of the building, but the projection of the cornice shall not fall within this arc [Figure 1].

Chimneys shall not penetrate the roof at less than 1.50 m. [4.89 ft.] from the line of face nor rise more than .60 m. [1.96 ft.] above the ridge.

The front wall of dormers [B] shall be at least .30 m. [.98 ft.] back of the face of main wall, and the entire structure of the dormer should not rise more than 3 m. [9.84 ft.] above the base of the roof. Their width shall not exceed 1.50 m. [4.92 ft.]. The walls of dormers must be parallel with one another and the distance between them must be at least 1.50 m. [4.92] whatever the width of the dormers may be. A second range of dormers may be employed if kept within the prescribed profile.

The minimum height of a story shall be 2.60 m. [8.52 ft.].

The projection of a cornice shall not exceed the thickness of the wall at its summit.

practically opening into each other across narrow streets. And a fire fairly kindled before an alarm. The extent of the further spread of the conflagration was only a question of luck and pluck. The pluck that of our firemen, of course. And the luck that the flames were stopped short of the great retail dry-goods fire-traps, with their adjacent hotels and theatres, extending westward from near the limits of the fire. Given a cold night and high wind the $75,000,000 loss of 1872 might easily have been repeated.

Captain Shaw, of the London Fire Brigade, tells us that "the risk of a building is in direct ratio to its cubical contents," and he also lays particular stress on the element of height. He demands that buildings should have numerous partition-walls of brick, and that these should have good foundations and be well tied together at all angles by iron bedded in the masonry; so that practically the walls would stand intact after the contents and floors had burned out and fallen into the cellar. He also objects to the use of stone, when brick can be employed, and especially to stone ashlar and to all projecting stone balconies and cornices as extra hazardous in event of fire; and he is an earnest advocate of heavy wooden columns and girders. These and similar recommendations lead one of his English critics to assert that "the provision against danger from fire cannot be hundreds of feet of Mr. Richardson's delicate carving with painted sign-boards. It is this that compels our façades of stone to be set on first stories of plate-glass entirely unprotected. And it was this demand that led directly to the false construction that toppled the walls of the "Brown-Durrell" building onto our devoted firemen.

It is high time that a line be sharply drawn, beyond which the convenience of trade shall not jeopardize the lives and property of one's neighbors; and that the essentials of construction shall be controlled by experts under the law. The experts' skill and art should be employed strictly within the limits of safety. If we wish the mechanic to supplant us on the one hand and the pictorial artist on the other, there is no surer way to such a result than neglect of our opportunities to lead in the art of building and to prove that usefulness and beauty can exist in perfect harmony in the same structure; and that all reasonable business requirements can be satisfied without the sacrifice of one to the other.

In the long struggle for such improvements in building as are embodied in the existing law, your representatives were constantly met by the assertion that such restrictions would discourage investment and injure all real-estate interests. It will be generally admitted that such has not been the case. "Mill-construction" has

steadily grown in favor, but it is somewhat difficult of adaptation to complicated structures, and is chiefly useful in buildings attacked by fire from within. That the law was not stringent enough we well knew, but all was obtained that public sentiment would then support or any ordinary system of inspection could enforce. But the time is ripe and the public is ready for another advance. A leading insurance agent calls for a limit of height to sixty-five feet and of room-areas to five thousand square feet: there were lofts in or near the fire of from 20,000 to 30,000 feet area. Strong hints are thrown out of heroic measures of self-protection by the insurance companies themselves. The foreign law, which makes the owners of a building in which a fire originates responsible for all resulting damages to others, finds some advocates. Unprotected iron-construction, especially girders and columns both interior and exterior, is universally condemned. And last, but far from least in importance to us, "Eiffelism" in building has received a marked check; and there is a fair chance that a law like that of Paris, proportioning all heights of buildings to the width of the streets on which they abut, may be enacted if vigorously pushed. And here let us for a moment consider the question why an individual should be allowed to erect a building of extravagant and hazardous height in a crowded neighborhood any more than he should be allowed to store dynamite or petroleum. We restrict materials, processes, uses and a hundred other matters; and yet we allow a section of the city to be half ruined that an experiment may be tried. It is the old story of the tyranny of the minority to which Americans tamely submit in so many other matters. Neither necessity, nor profit, nor convenience, nor safety, nor beauty, can be pleaded. If any one chooses to build such towers at a suitable distance from all other edifices there might be no sacrifice of public safety; but on narrow streets the law should afford immediate redress or compensation, as in the case of any other nuisance, and further movements in the same direction should be promptly checked. The evil would, no doubt, correct itself in time, but not until much injury has been done and money wasted. Even in locations where such structures could not prove injurious to the neighborhood they should be provided with their own fire-extinguishing plant, maintained under constant surveillance; the ordinary apparatus being of no service at heights of over about eighty feet and of not much at above sixty. Earthquakes are not often taken into account in our neighborhood, but an earthquake that would wreck a twelve-story building is by no means an improbable event. About twenty years ago Boston had a shake that on a fifth floor caused water in a pail two-thirds full to slop over. And there are, or were very recently, low two-story walls standing at the "North End" that were cracked, within two hundred years, by the same agency.[1]

Some of our soundest judges in real-estate matters consider that above six stories, or about eighty feet, the additional cost will not find a reasonable return in rents. Elevators have to run too fast and too far, with great wear and tear of machinery. The smoke and gas from neighboring chimneys will render the upper rooms almost uninhabitable at times, especially with the present tendency to the use of bituminous coal. Difficulties of foundation and general construction are seriously increased, and the neighboring buildings that are driven into the ground and overshadowed are impaired in value. Then such a structure is a serious menace if a fire occurs around its base, as a hot conflagration is almost sure to destroy iron and stone supports and bring down the great mass in ruin.

But it is hardly worth while to take the time of experts in the rehearsal of these matters in detail. We might none of us decline a commission to build the tower of Babel, if offered us and permitted by law. As in everything else, we must find equality and protection under judicious laws enacted to guard the interest of the many, and not to promote the vagaries of a few. And this leads to the presentation of a few suggestions concerning the needed changes in the Building Act. We must give early attention to these, for if we and others equally well-informed neglect the matter, the cranks will exert themselves actively, as they always do, and we shall have an amended law perhaps more faulty than the present.

It is probable, from the present drift of public and expert opinion, that some movement will be made:

1. To govern the height of buildings by the width of the streets on which they abut.
2. To restrict floor-areas of business buildings, perhaps to 5,000 feet.
3. To require all warehouse floors to be of mill-construction or protected with wire-lathing and plastering or an equivalent.
4. To limit the area of openings in street-fronts, and compel steel shutters to be put to shop-fronts and warehouse front windows.
5. To have all constructional ironwork, interior and exterior, protected.
6. To reduce the size of openings through party and partition walls and require self-closing fire-doors.
7. To require walls faced with stone ashlar to be thicker than if solid brickwork.

In addition to these, many minor changes are needed in the law to make it absolutely clear and to correct some mistakes and oversights of the present version.

On all these matters there will be much controversy. The real-estate owners, the insurance authorities, the fire experts, and last, but far from unimportant, the tenants, will have something to say. The architects and builders, if they wish to promote a good law that can be enforced, must act with great discretion, deliberation and conservatism, and must not allow their enthusiasm for the ideal to interfere with a sure step in the direction of better building.

[1] "Fell in ye year 1753 Nov. 18th early in ye Morning by a great Earthquake by my old Master above." — Original document found in the Faneuil Hall grasshopper (Vane). — Porter's "*Old Boston.*"

"There was an old crack in the front wall, said to have been caused by an earthquake in 1663, 'which made all New England tremble.'" — The "Ship Tavern." — *Ibid.*

"A wizened little two-story gambrel-roof house, built soon after the Great Fire of 1676. It is sadly wrinkled by age, scarred by hard usage, and disjointed by an earthquake of the last century." — House on North Street, opposite Sun Court. — *Ibid.*

BOOKS — PAPERS

IT may surprise the authors of this work[1] to know that as the writer regarded its shape and bulk, perceived the quality of its paper and the excellent form of its typographical make-up and examined its contents, these questions occurred to him: "In what is this book different from that object of many an architect's scorn, a 'trade catalogue,' and how can it rightly be entitled to a review in these columns when a similar treatment must be denied to the equally handsome, useful and bulky volume that is published with a view to persuading people to purchase the author's hardware? Is it more legitimate to hawk about designs for houses than designs for artistic hardware? Does an author come more within the literary fold when he dilates upon the cunning devices he creates on paper for builders to follow than when he describes the merits of ingenious appliances which builders may use?" Both books are made and distributed with a single purpose — the deriving of a future pecuniary return through the exploiting in this way of the goods the authors manufacture. Both, too, seek to disguise their real intent by adding certain instructive matter of general application, one by describing the kinds of metals, their properties and the methods of working them, together with tables of one kind or another which have a daily and general usefulness; the other's domino consists of essays in criticism, dissertations on taste and a variety of unsubstantial subterfuges. In one case the disguise is too insufficient to prevent one's perceiving the real character and meaning of the publication; in the other case it is too often a sufficient cloak. It is deemed by many architects unprofessional to advertise in the newspapers, to distribute circulars and cards, or to tout for work with the wire-pulling methods of the needy jobber; others do not disdain some or all of these methods, and there are even some we could name who do not shrink from placing on the circulars they distribute the designs of abler architects for whose names they substitute their own. How far the arts of book-making can be made to differentiate the act of those who seek work with the aid of the cheap circular distributed by the gutter-snipe from that of the men who seek it in book-form is a question for casuists to determine. Every man's first duty is to procure the means of sustaining life and he is not to be blamed if, one method failing, he employ another — always provided he overstep not the law.

In the case of this book the disguise, to still make use of the word, or the padding, if another word is preferred, consists in three or four essays of very singular substance to be found in a book of architectural character, since they have rather the rhetorical flavor with which young clergymen imbue their early discourses than the usually simple and straightforward style in which architects describe their intentions and explain their aspirations.

The authors write with much earnestness, but without a due observance of proportion in the use of capitals, for one finds that the words art, architect, architecture, building, home, etc., are treated in this respect with quite as much respect as the frequently occurring name of the deity and his appropriate personal pronouns. The first essay is devoted to maintaining the unrighteousness of the "sharp contrasts" that exist between the states of the several social classes of to-day, and the argument that, because the coal-heaver as he passes Trinity Church is not so uplifted by its architectural beauty as to be able to abstain from his evening dram and its several successors, therefore it is quite wrong that money should be spent for architectural work of such character. What would happen to the world if things were reduced to the comprehension of the coal-heaver the authors do not stop to inquire, but what a glorious time for cakes and ale there would be, if this reasoning should be applied! There are "sharp contrasts" and there always will be, if you go far enough in search of them, and they are painful and distressing to the sensitive mind when they are perceived, but in relative quantity they are gradually growing less, the world over, and the permanence of good institutions is only made the more lasting by the sloth of the evolutionary process. The unrighteousness of the distribution of wealth — and a stop is not made to consider the impossibility of maintaining an equal or an equitable distribution of wealth or how in the natural course of time the difference in mental fibre must inevitably lead to the collecting in comparatively few hands of an inequitable share of

[1] "*Examples of American Domestic Architecture.*" By John Calvin Stevens and Albert Winslow Cobb, Architects. New York: William T. Comstock, 1889.

the once evenly distributed wealth — is in some way an obvious evil, but it is a hopelessly incurable one and it is not really half so bad, unrighteous and miserable as enthusiasts would have it appear. The good that men of great means do with their money is unknown, generally, to all but the objects of their assistance. The gathering of great wealth in few hands makes possible a vast amount of work that promotes the general welfare, even that of the coal-heaver, in a way that an equitable distribution would render impossible for centuries, during which the advance of civilization and progress must halt along the way. It *is* hard for a man to work ten hours a day and receive only $1.50 on which he must support his family, but it is in a sense his own fault or rather the fault of his undeveloped intellect, which does not allow him to seek out and obtain a higher rate of payment. But he is only one step in the evolutionary process; his children, the chances are, will be more intelligent, will seek other kinds of work and will fare better, and before many generations will become the capitalists now so obnoxious to the sentimentalist.

It is curious to find the authors citing as an instance of the unrighteousness of the existing order of things the fact that, owing to the destruction of certain rookeries in Berlin and London for the sake of building improved houses on the same sites, the former population was turned out, and, pending the rebuilding, had to resort to such shelters as could be found, and, as is the custom with the proletariat, declined to move away from the immediate vicinity of their daily labor in search of greater convenience and more healthy surroundings, but preferred to undergo all the horrors of insanitary and immoral crowding in dark and unventilated cellars. Our authors look on these self-inflicted sufferings — in most cases not felt to be sufferings, very likely — as glaring instances of "sharp contrasts," and hold that the capitalist was responsible for them. In like manner, they probably look with sentimental disapproval on the radical changes now going on in Naples, which, given time, will probably transform that most pestilential of cities, which travellers pass through but rarely stop in, into a well-regulated and civilized place. But it is a question how far the capitalists and the great middle-class are to be sacrificed for the sake of constructing a world which is just adapted to the needs and desires of the *lazzarone* and the coal-heaver. If it is granted that the great middle-class has also a right to a degree of civilized comfort, and that its instincts are upwards to a higher plane of intellectual and material living, and not downward to mere animalism, it must be acknowledged that the enterprises that the capitalist undertakes serve their very useful purpose in giving not only immediate employment to the proletariat, who may feel the "sharp contrast" but, nevertheless, is exceedingly glad to get his daily wage, but also in furnishing to the aspiration of the middle-class a most useful object-lesson.

The object our authors have in taking their turn upon the socialistic hobby-horse which every one is riding nowadays — every one, at least, who is not writing essays, tales and novels based on psychical research — is that it may serve as an introduction to the proposition that the best building is the simplest, or the simplest the best. It seems to us, however, that one can hymn the charms of sweet simplicity without forbidding that mankind shall thrill with the more poignant emotions which more elaborate, but not less real, works of art stir in most beholders, who do not think that the heaving of coal is the most noble occupation of man.

One would suppose that where simplicity was the first care of the designer it would be most conspicuous in those designs where he had only his own feelings to consult, but, oddly enough, the designs our authors lay before us where simplicity is most obscured are those which are indicated to be "designs" and "sketches," so that it is evident that their eccentricities are not due to the whims of the exigent client, but are proofs of an ungodly hankering after the fleshpots of architectural enormities beyond the comprehension of those who suffer under sharp contrasts. "A House for an Acre Lot," which evidently was not designed for a definite client, and certainly is *not* a house for an acre lot, can hardly be held up as a sample of simplicity in design. But this one design and a few other less eccentric ones apart, our authors fairly practise what they preach, and show good, wholesome, simple designs for the dwellings of simple people, houses and cottages that look and doubtless are homelike and comfortable, that will give the passer-by a pleasing sensation as he goes, but will not excite keen envy, nor yet remind him of the inevitable existence of poverty and wealth. Men who do such work as this assuredly get more real pleasure in the doing than those who are called on to spend vastly greater sums, and have to resort to all sorts of tricks and experiments in order to spend the appropriation and accomplish a result that shall outshine the building of the client's best-detested neighbor.

Of the manner in which these sketches are presented we have no word of dispraise to say. Mr. Stevens, whose initials are affixed to most of these sketches, it may be remembered, was, a year or two ago, invited to make one of the sample drawings in our exhibition of architectural rendering [See the *American Architect* for July 23, 1887], because we considered him an excellent representative of one school of rendering, a school which appeals rather to the lay than to the architectural eye.

The book is a singular compound, but we do not say that it is the worse for being singular, though it is a compound few would have thought of mixing. It seems likely, however, that few who care for the book as a legitimate architectural undertaking will care for the arguments of the essayist, and yet the only thing that raises the work above the level of the trade catalogue is the presence of these same essays, hardly a paragraph of which can be read without exciting antagonistic feelings. To our minds, the authors' attitude is strained, unreal, untenable, unnecessary, exaggerated, and yet there is enough of truth in their position to make one willing to stop as he reads along for a moment or two while he reflects whether writer or reader is right or wrong in the matter. As usual, the effect on the reader is that he takes up a position as remote from the writer as possible; that is, in this case, as the writer has perched on the topmost pinnacle of spiritual exaltation, the reader plods amidst the most prosaic of mundane necessities. As usual, the proper position lies somewhere between.

Now and then a conclusion is put strongly and well, as, for example, this:

"As finery is to decent raiment, as gluttony is to eating for life's sake, as wantonness is to wedlock, so is this intemperate abuse of the principle of true art to true art itself. The one is ennobling, the other is degrading. And in a Christian church, of all places, care should be taken that all base travesty of art should be excluded."

No exception can be taken to this as a statement, but then what is "true art" and what is not? Our authors declare that an "eight-foot St. Paul" must be carefully avoided, that "sculptured oak leaves, grape-vines and acanthus capitals" are "rot," and "tell no good story." They dislike the "tattooing of the walls of a temple built in the Good Shepherd's name" while there is a myriad of sheep of the fold still wandering outside in suffering and despair. Yet, in spite of the disconsolate wanderings of these shepherdless sheep — our doctrine teaches that the shepherd most anxiously searches after the missing hundredth one, lamb or old wether — our authors allow themselves to use "cathedral glass of harmonious tones," carved "constructive features, such as trusses and columns," an "occasional memorial window," "frescoes at either side of the pulpit chancel," and are willing to do these things without stopping to think of the wrong they are doing to the outcast sheep by flaunting in their faces a sharp contrast between plain and cathedral glass, rough-sawn timber, and the same hand-carved, plain plaster and decorated. It is Tweedledum or it is Tweedledee. Which? What is "true art" and what is not?

THE next publication[1] (published for private circulation only) before us does not plunge the reviewer into the unfathomable depths of moral, social and "true art" ethics. It bids him consider such concrete facts as that a business block built after the designs of the author at a cost of $47,000 rents for over $30,000 annually, while three houses in the suburbs of New York which cost less than $11,000, rent for over $2,400 per year.

In make-up, costliness and size this little unbound pamphlet is as different as possible from the costly and elaborate book we have just been considering, but the intentions of the authors are absolutely identical, and one is as genuine an addition to the literature of architecture as the other. But in the second case no attempt is made to disguise the fact that the publication is intended to promote the business interests of the author, since most of the designs are accompanied with extracts from newspaper accounts of the several buildings shown, which, apparently, prove that the author has been unusually successful in accomplishing satisfactory results in widely different fields of architectural design. On turning over the pages, one finds that in almost every case the designer has had "an idea," not always a good one, of course, but yet not always a bad one. The collection forms an admirable foil to the works of Messrs. Stevens and Cobb, for while these have avowedly sought simplicity before all things, we should judge that in most cases simplicity was almost the last element in designing that had engaged Mr. Gilbert's attention.

THE list of serial publications which devote themselves to the interests of architecture and building, already formidable because of its length, must this week be increased by the addition of three new names. The first, the *Canadian Contract Record*, is a weekly issue of four small quarto-pages, without illustrations, which aims to give early information concerning building proposals and contracts, and is issued as a supplement to the *Canadian Architect and Builder*.

The second is the *Architects', Builders' and Hardware Journal*, a monthly periodical which is to be published at Atlanta, Ga. The initial number contains three photo-lithographic illustrations of the standard size, and ten pages of text, which, aside from half a page of short notes and one contributed letter, are filled with articles borrowed from other journals.

The third new-comer is to be a semi-monthly paper published at Pittsburgh, Pa., under the name of the *Journal of Building*, and in make-up forms a decided contrast with the last, for it announces *twenty* separate and individual departments, and to give adequate attention to twenty departments within the limits of twelve pages surely calls for the exercise of great skill in condensation, at least. Naturally, then, the publishers have secured "a corps of practical and experienced editors," and, as nothing is so disastrous as unorganized independent effort, this corps is "presided over by an editor-in-chief with ten years' experience in conducting builders'

[1] "*Architectural Sketches*," with illustrations by Messrs. H. P. Kirby, C. A. Vanderhorf, E. J. Meeker, Gray Parker and others, from original designs by Bradford L. Gilbert, architect. New York. 1890.

journals" — not one, but an infinite number apparently. This gentleman, of large experience, has achieved a position which, if we may believe the words before us, has been attained by no other man connected with the publication of building journals, for it is here said that he presides over the only journal "*that has an editor at all.*" This being the fact, it is our duty to seek how we may profit by the great experience of the only editor in the country, and, turning to the pages before us for enlightenment in the proper use of grammar, orthography, diction and rhetoric, we find that in the first line the new publication is called "an new organ," which seems to show that the real editor does not necessarily observe the rules which others have formulated as to the uses of "a" and "an" — but perhaps it is not an editor's duty to see that his publisher's announcements are properly worded and spelled. So we will turn over to the editorial page in search of samples of pure editorial English and good style, and here we find these gems: "I surmised a moment or two, and then resolved that my friend was more of a daplomat than many of the rest of us"; "and which, I am glad to say, that many hundred of my readers, after reading it, have patted me on the back"; "Nature has no rope on the top of her cubbord"; "but it is a duty I owe and you owe to the perpetuation of our land whose fathers planted as the bulwark, the flag of Liberty. That stone shall ever be its rock of all ages so far as I am concerned." This metaphorical outpouring makes us surmise that the person who prepared the publisher's announcement, where we find that civilization is in the habit of planting the "fig-tree of progress," was, after all, the only editor in the country.

SOCIETIES

THE DETROIT ARCHITECTURAL SKETCH-CLUB.

AT the last regular meeting of the Detroit Architectural Sketch-Club, the following officers were elected for the ensuing term: *President*, J. A. Hackett; *Vice-President*, W. B. Stratton, re-elected; *Secretary*, C. A. Fullerton, re-elected; *Treasurer*, H. C. Stevens; *Executive Council*, A. Kahn, Max Grylls, George Harvey.

The next competition will be for a "city front."

The club has started a movement to organize the several Art Societies in our city into an association: the result from such a union is obvious, large and permanent quarters, a large library of art journals, etc. CLARENCE A. FULLERTON, *Secretary.*

THE ARCHITECTURAL LEAGUE OF NEW YORK.

THE Architectural League of New York, respectfully announces that the date of opening of the Fifth Annual Exhibition at the Fifth Avenue Art Galleries, is unavoidably postponed till December 27. Press view and reception on December 26.

The Exhibition will remain open as heretofore stated until January 11. CHARLES I. BERG, *Secretary.*

BOSTON SOCIETY OF ARCHITECTS.

AT a regular meeting of the Boston Society of Architects, held on December 6, Mr. John A. Fox read the accompanying paper, and a general discussion followed upon the lessons of the recent fire, and the best methods of preventing the spread of fire from building to building; and a committee was appointed to present at an early day a proposition for revising the Building Laws of the City of Boston, in so far as they relate to protection against fire.

ARTHUR G. EVERETT, *Secretary.*

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

BARYE'S ENGLISH ADMIRER.

BOSTON, MASS., December 9, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Dear Sirs, — In several recently published notices of the New York exhibition of Barye's works, I find the following: "Had he been born in Great Britain," said an English artist, "we would have had a group by Barye in every square in London." Imagine all the squares of the great metropolis looking like sections of a petrified zoological garden! May I express the hope that no other writer will quote this remark, which shows a praiseworthy enthusiasm for Barye's genius, but is as far as possible from the truth, judging by experience. I should like to know the name of this English artist, and to ask him how it is then that Alfred Stevens, an artist not inferior to Barye, was so poorly appreciated in England during his lifetime. Stevens was born in Great Britain, but it helped him little, and so greatly inferior a sculptor as the Italo-Frenchman, Marochetti, received numbers of commissions, while Stevens was neglected. To-day, nearly fifteen years after his death, his grand monument to Wellington, in St. Paul's, remains uncompleted by the addition of the equestrian figure of the Duke upon its summit, mainly because of the protests of the Dean against admitting an equestrian group into the sacred edifice. Yet there were already two such in the cathedral, Baily's monument to General Ponsonby, and Westmacott's monument to General Abercromby.

Even now, the sculptor in England who receives the best public commissions is an Austrian, Sir J. E. Boehm, a man, however, of much more talent than Marochetti. It is not inappropriate, perhaps, here to recall the fact that in 1886 the Royal Academy rejected a piece of sculpture by Rodin.

As for myself, I believe in the recognition and patronage of genius, no matter where it originates, yet good artists should certainly find support at home, which in England and America, not to mention other countries, they certainly often do not.

I see that in a late number of *Harper's Weekly*, so able a writer as Mr. Charles de Kay, quotes this English tribute to Barye. Mr. de Kay, who has written the text for the *de luxe* Barye catalogue and is Secretary of the Barye Monument Association, is in error when he says (in *Harper's Weekly*) that in Baltimore are only two of the four Barye groups from the Louvre. As a fact, all are there. ANGLO-AMERICAN.

APARTMENT-HOUSES.

PHILADELPHIA, PA., November 26, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — We desire to obtain all the information we can, relative to the erection of apartment-houses, flats, etc. Could you recommend to us any publication, which would give us a variety of plans, estimates, etc., or suggest any other method by which we could obtain the desired information? An early reply will greatly oblige. Very truly yours, F. A. DAVIS.

[ONE or two of the volumes of Daly's *Architecture Privée*, would give more plans of the sort than can be found together in any book we know of, but by far the best way to get a view of the modern planning of such buildings is to look through files of the technical periodicals. We have published many such plans, and some others can be found in the files of the *Engineering and Building Record*, while innumerable French plans, perhaps the best and most ingenious of all, are to be found in *La Semaine des Constructeurs* and *La Construction Moderne*, and German ones, which have their merits, as well as their peculiarities, in the *Deutsche Bauzeitung* and the *Wiener Bauindustriezeitung*. Detailed statements of cost are usually given in the French journals, but nowhere else. We have ourselves collected a good deal of material of the sort. If it it would please our readers to have it reproduced in a connected form, we should be glad to know it. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

ROME AS A SEAPORT. — The Rome correspondent of the London *Standard*, in a letter on the subject of making Rome a seaport, recalls that this project and others of present times were originally proposed by Garibaldi: "When Garibaldi came to Rome to take his seat in the Chamber, the dreams which he had nourished as a boy, of aiding the material as well as the moral regeneration of the Eternal City, took form in three grand projects, each of which was considered at the time scarcely likely to be carried out, if, indeed, attempted, within the present century. They were, first, the embankment of the Tiber, with a view to averting the ruinous inundations to which Rome has been liable for centuries; secondly, the cultivation of the Roman Campagna, and, thirdly, the conversion of Rome into a seaport. The embankment, a huge and costly work, is already well begun, and the looker-down from the heights of San Pietro, in Montorio, or the Villa Corsini, may see considerable patches of the white marble wall as his eye follows the winding course of the river through the city, especially near the spot once covered by the picturesque squalor of the Ghetto (now swept away), and wh re its courses is spanned by a new stone bridge bearing Garibaldi's own name. The cultivation of the Campagna goes on more slowly, so many conflicting interests being concerned, and the largest landowners not holding exactly the most disinterested and patriotic views on the subject. But the greatest scheme of all — that which at the time appeared the most visionary — that of making Rome a seaport, is under the serious consideration of the authorities, and appears likely to be undertaken at no distant date. A commission has been formed to examine the projects which have been presented, consisting of the Prefect of Rome and a Municipal Councillor, an officer of rank in the navy and one in the army, and one representing the Ministry of War, the Captain of the Port of Civita Vecchia, and a prominent steamship owner. The project under consideration is approved by M. Lesseps. It is extremely simple. It is proposed to cut a canal eighty metres wide and ten metres deep from the Tiber, near the Church of St. Paul, outside the walls, to the seashore at Castel Fusano, a distance of eighteen kilometers, or eleven miles and a quarter. An American company would assume the construction of the works, and the estimated expenses is 68,000,000*f.* The enormous impetus which would be given to industry and commerce in the capital and in the whole province if this scheme can be carried out can hardly be overestimated, and its transforming effect upon the Italian capital must be all in the direction of prosperity."

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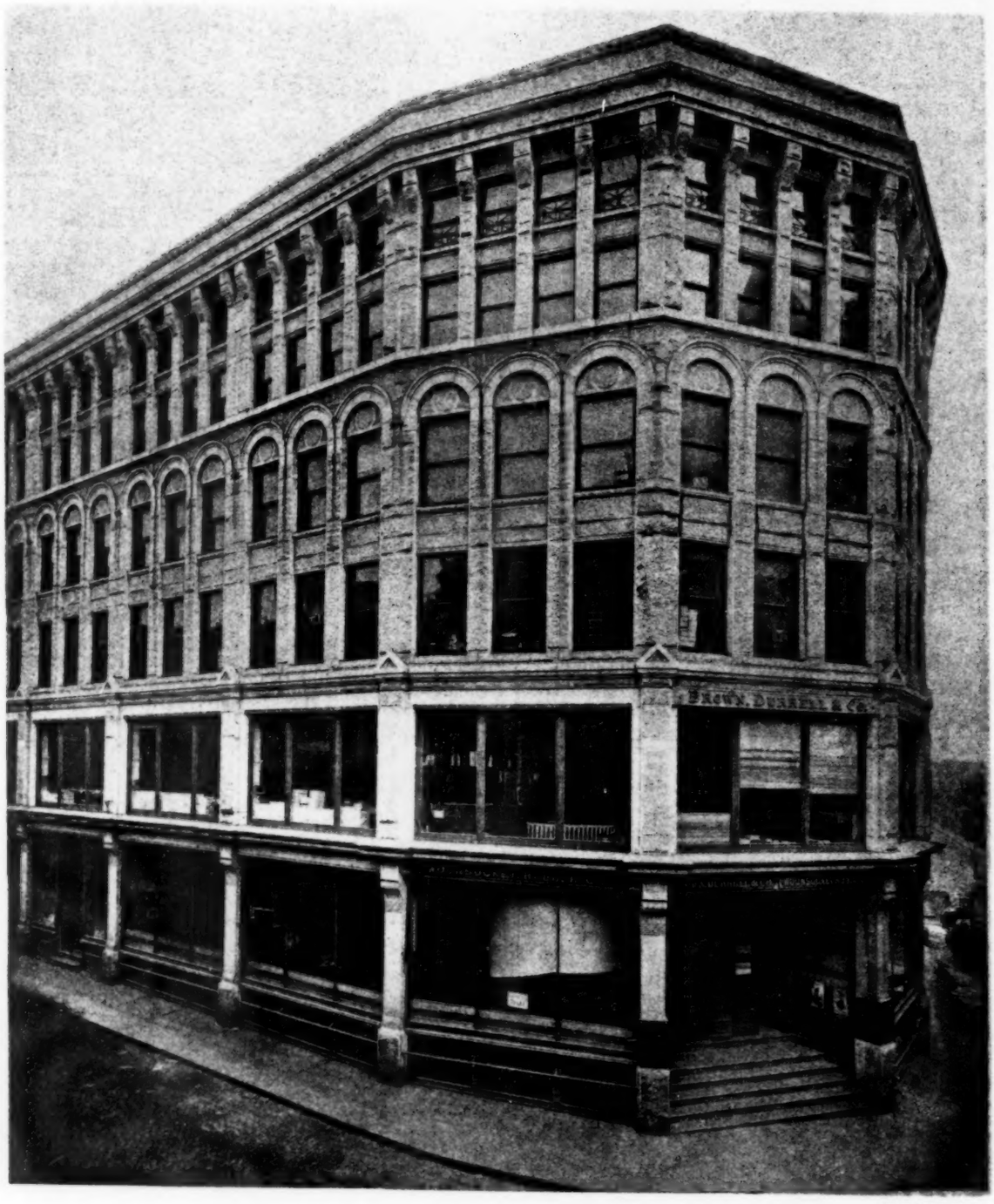

BUILDING ON KINGSTON AND BEDFORD STS. BOSTON, MASS.

American Architect and Building News, Dec 14, 1889. No. 729.

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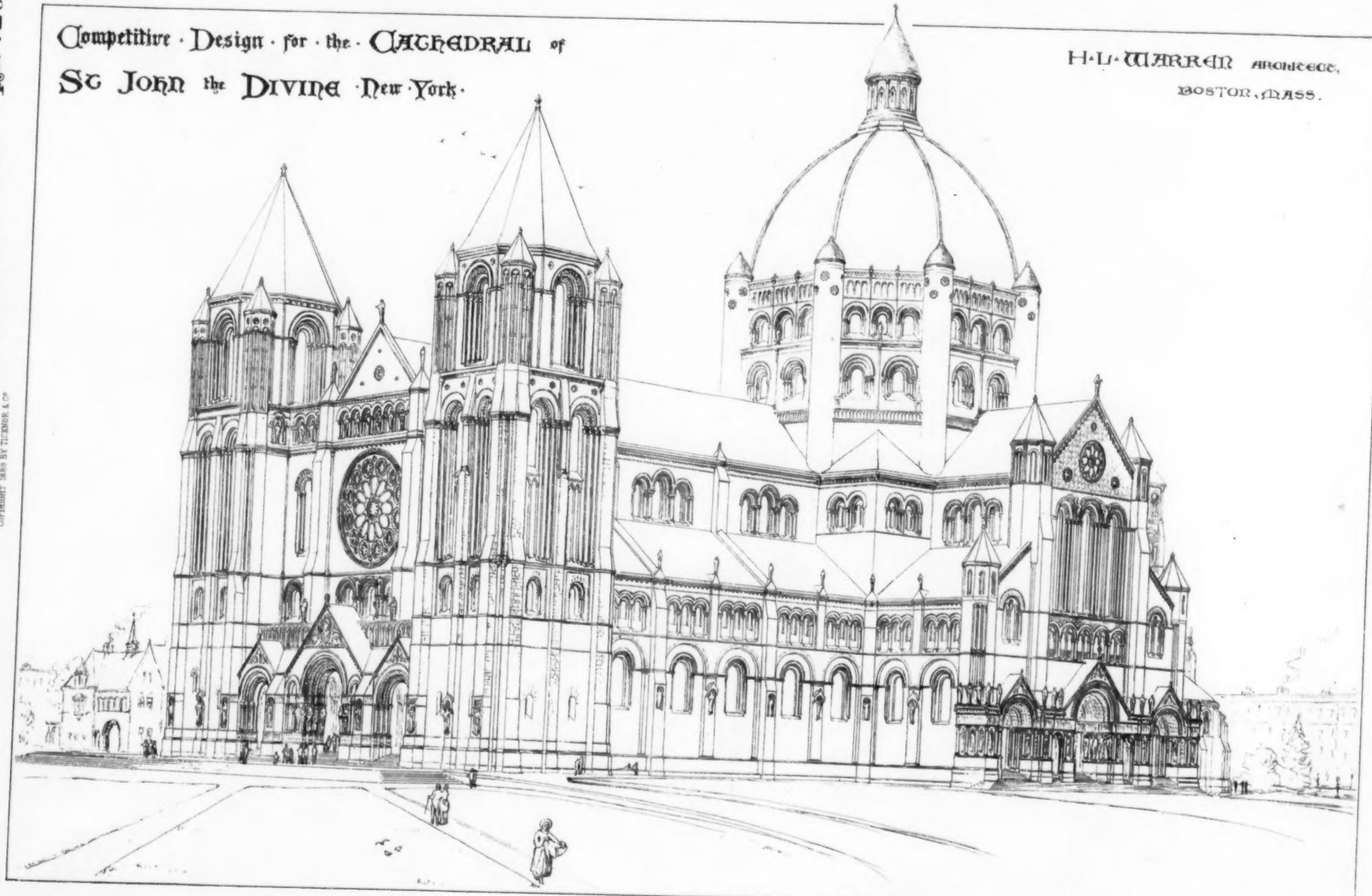
Competitive Design for the CATHEDRAL of St John the Divine New York.

H.L. WARREN Architect,
Boston, Mass.



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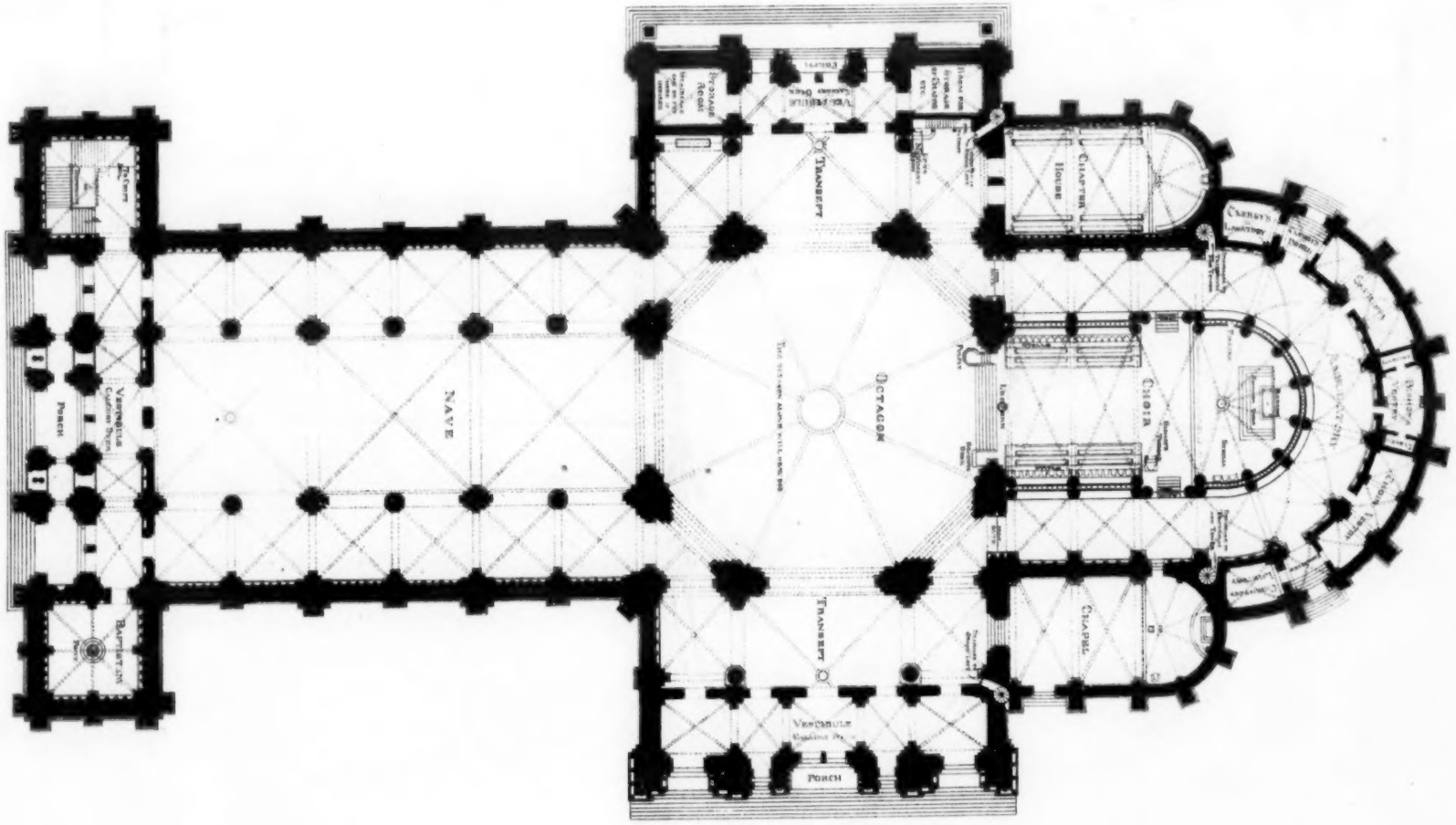

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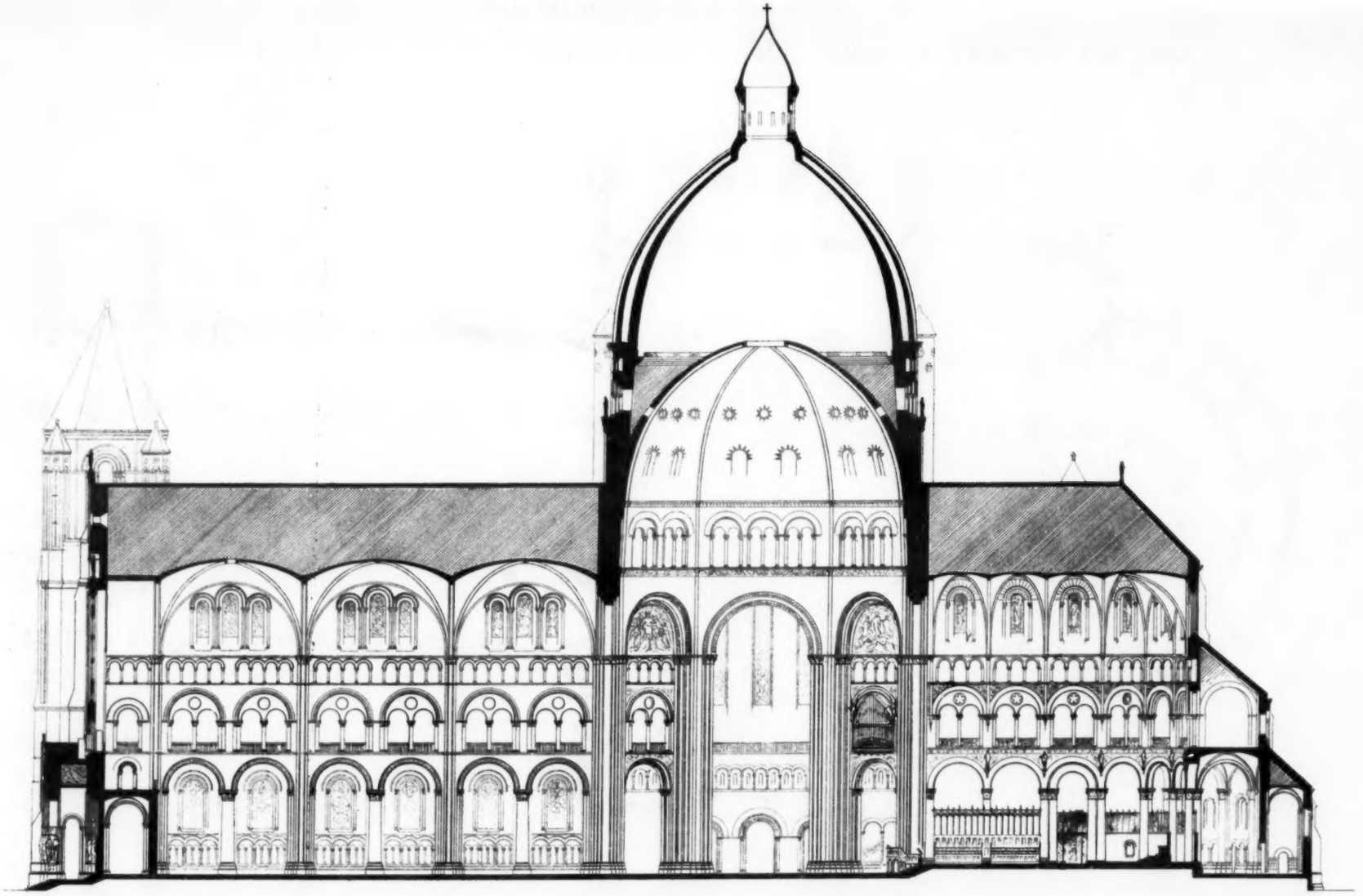

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American Architect and Building News, Dec. 14. 1889 No. 729.

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New Brunswick.

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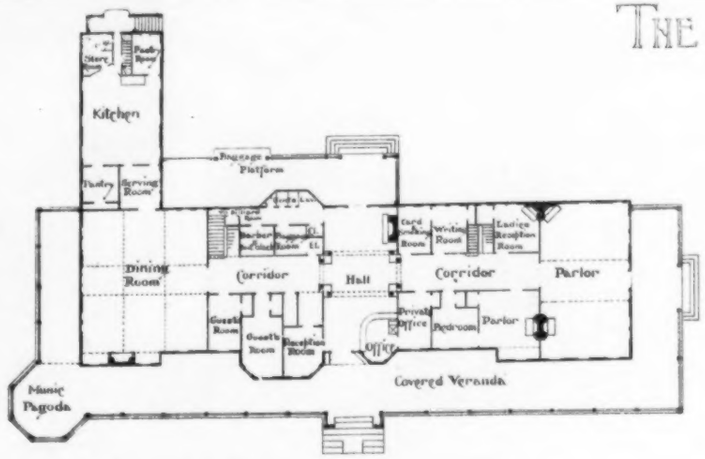
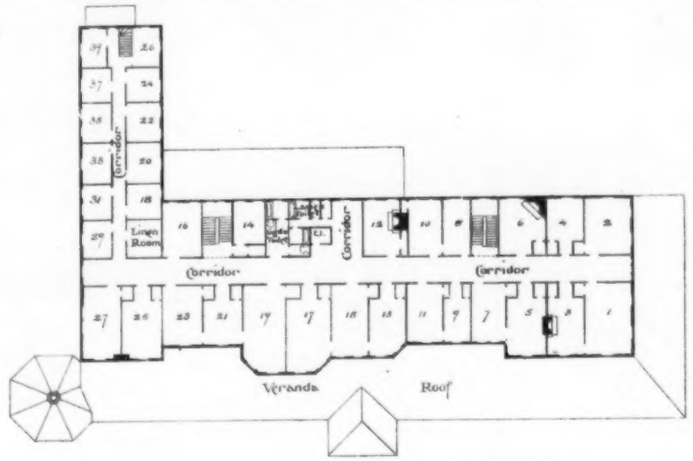


First Floor Plan.



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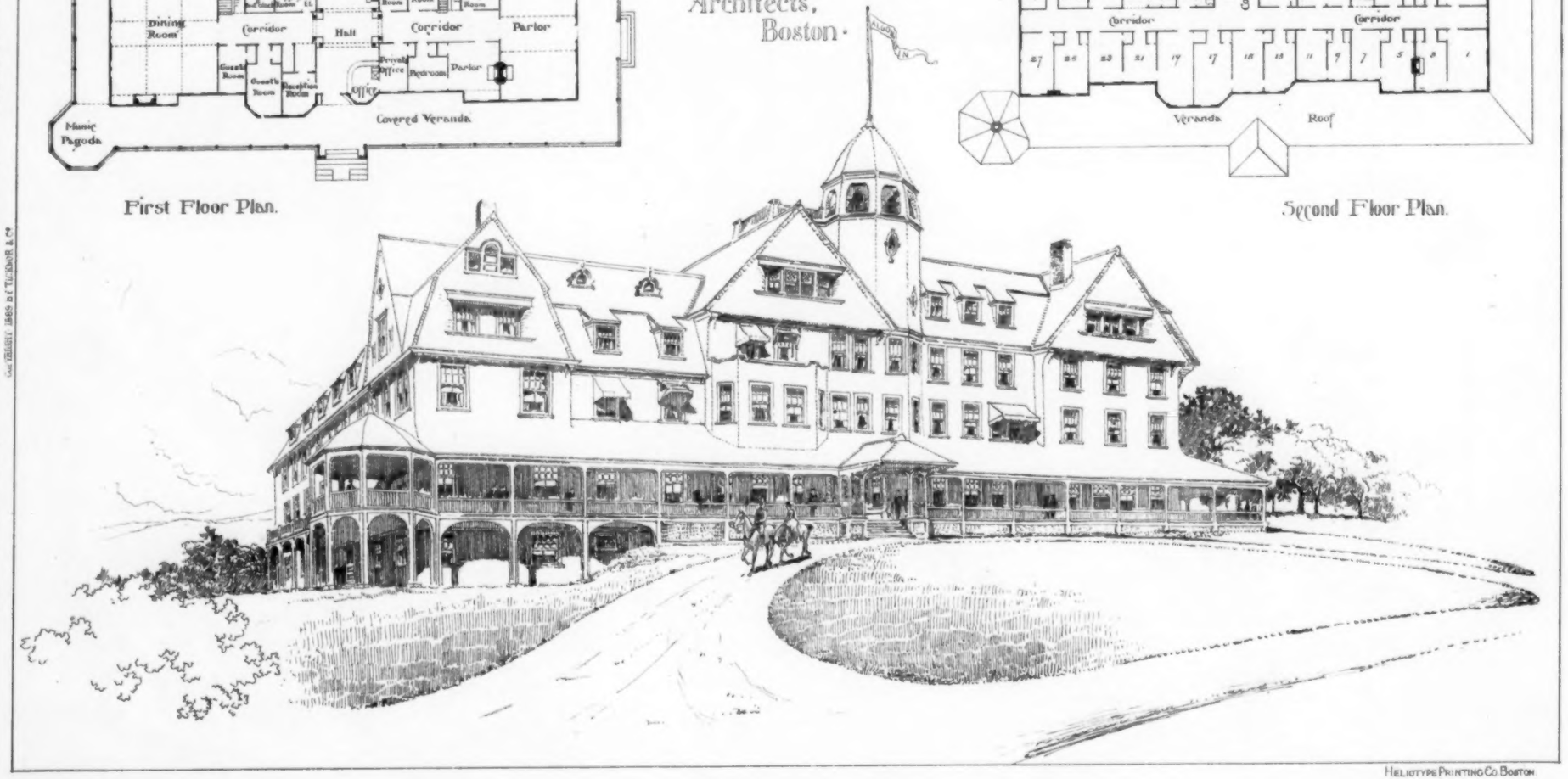

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